Does the Identity of Engagement Partners Matter? An Analysis of Audit Partner Reporting Decisions

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Abstract

This study examines the persistence and economic consequences of variations in reporting style across audit partners in individual engagements. Our results show that both aggressive and conservative audit reporting, which are measured by the frequency of historical Type 2 and Type 1 audit reporting error rates, respectively, persist over time and extend to other clients of the same partner. Analyses of the earnings properties (earnings informativeness and abnormal accruals) of client firms corroborate this finding, and hold both for private and publicly listed companies. Importantly, our results also show that the market penalizes client firms susceptible to aggressive audit partner reporting decisions. In particular, we find that the extent of engagement partner prior Type 2 reporting failures is related to higher interest rates, worse credit ratings and less favorable forecasts of insolvency for private client companies and a lower Tobin's Q for publicly listed client companies. Collectively, we provide evidence that reporting decisions of individual engagement partners vary across audits and indicate how an audit partner will perform in the future. These results imply that audit partner aggressive or conservative reporting is a systematic audit partner attribute and not randomly distributed across engagements.

JEL Classification: M49

Keywords: Auditor behavior, audit failures, audit reporting, audit quality.

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1. Introduction

Recent studies provide increasing evidence that individual auditor characteristics can influence audit outcomes. Zerni (2012) reports that engagement partner industry specialization and experience with large public companies are valued by clients and users of financial statements, resulting in higher fees for some partners. Knechel, Niemi and Zerni (2013) show that audit partner compensation is partially based on individual performance and quality of work. In a related vein, Gul, Wung and Yang (2013) find that individual Chinese auditors exhibit a significant variation in audit quality. In general, these studies support the need for research on potential variations in audit quality at the level of the individual auditor over time and across clients, as well as the economic implications if such variation occurs (Wallman 1996; DeFond and Francis 2005; Nelson and Tan 2005; Church, Davis and McCraken 2008; Francis 2011; Gul et al. 2013).[1]

Regulators have also adopted this perspective by supporting requirements to identify the audit partner in-charge of an engagement. For instance, the revised European Union's (EU's) 8th Directive (2006) requires disclosure of the identity of the engagement partner, and the Public Company Accounting Oversight Board (PCAOB) has proposed a similar requirement.[2]

[1] The terms "auditor", "audit partner", and "engagement partner" are used interchangeably in this study.

[2] This proposal is based on the final report of the U.S. Treasury's Advisory Committee on the Auditing Profession (ACAP), which recommends, among other things, the PCAOB to undertake a standard-setting initiative to consider mandating the engagement partner's signature on the auditor's report'' (ACAP Report, October 6, 2008, at VII:19). The amended proposal of the PCAOB does not require the engagement partner to sign the audit report but requires the name of the engagement partner to be disclosed in the audit report: "…*which would make the engagement partner's name readily available to the users of the audit report while mitigating concerns about*

According to PCAOB Release No. 2011-007 (October 2011, p. 2-3), "…it is the engagement partner who is at the center of the effort. He or she is responsible for the engagement and its performance". The rationale for these requirements is that individual audit partners may exhibit differential levels of quality over time and across clients so disclosure of the auditor's identity could provide useful information to users of the financial report. Partner signing or disclosure may also increase accountability in the audit process (ACAP, 2008). However, there is little current evidence that different audit partners in the same audit firm deliver different levels of audit quality across multiple audits on a systematic (non-random) basis, or that financial statement readers would find information about the engagement partner to be useful. If quality is relatively stable across auditors in a firm and not influenced by the traits of individual partners, then disclosure of the signing partner's identity may have limited benefit.

The purpose of this study is to explore the effect of individual auditor differences on auditor reporting decisions across clients and over time, as well as the economic consequences of (potential) variations in reporting style across audit partners. Specifically, we first examine whether aggressive or conservative audit reporting systematically varies across audit partners using tests involving: (1) the incidence of audit reporting errors proxied by going concern opinions and (2) the predictability of operating cash flows based on accrual earnings on which an auditor opines. For the former measure, we examine whether reporting errors associated with the decision to issue—or not to issue—first time going concern opinions (GCOs) follow a non-random pattern across time for other clients of a partner. For the second measure, we

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minimizing the firm's role in the audit." (PCAOB 2011, November). The Public Company Accounting Oversight Board's Standing Advisory Group discussed the proposal (and the prior version of this manuscript) in their meeting on May 15, 2013, but the issue remains still undecided (see: http://pcaobus.org/Rules/Rulemaking/Docket029/05152013_SAG_Transcript_Excerpt.pdf .)

examine the predictability of future operating cash flows since this is considered an attribute of high quality earnings (FASB 1978, paragraphs 37-39; Barth, Cram, and Nelson 2001; Minnis 2011). Specifically, we forecast one year ahead operating cash flow with current operating cash flows and accounting accruals and test whether the predictive ability of accrual estimates is conditional on the frequency of an auditor's prior reporting errors. Similarly, we use past levels of signed abnormal accruals to predict subsequent GCO accuracy. Our main analyses are focused on private companies as they comprise the large majority of the Swedish audit market to which our data and auditor-client relationships relate.[3] In supplemental analyses, we also examine a sample of publicly listed companies.

Using panel data of the total client portfolios of individual Big 4 auditors in Sweden, we find considerable evidence that similar audit reporting failures persist for individual partners over time. More specifically, the frequency of prior Type 2 and Type 1 reporting errors for an individual partner are correlated over time and extend to other clients of the same partner. *Ceteris paribus*, a shift of one standard deviation in prior Type 2 (Type 1) audit reporting error frequency results in a 2.66-fold (0.27-fold) increase in the predicted odds of a similar failure occurring in the future. Further, we find evidence that accrual-based current earnings are less informative (i.e. accruals are less persistent) about future cash flows for individual audit partners who have also exhibited a high incidence of prior GCO reporting errors. In supplemental analyses, all our findings are further corroborated using abnormal accruals. Specifically, we find a significant negative association between prior Type 1 errors and both income-increasing and income-decreasing abnormal accruals, and a significant positive

[3] Note that the proportion of public firms of all Swedish firms is only roughly 0.08 percent. The much smaller sample size and extremely tiny number of qualified audit opinions (N=10) prevents us from using going concern reporting errors as a proxy for auditor quality among publicly listed companies.

association between prior Type 2 errors and both income-increasing and income-decreasing abnormal accruals. Similarly we find that past conservative judgments on accounting accruals are associated with a higher (lower) likelihood of subsequent Type 1 (Type 2) errors, and past aggressive judgments on accounting accruals is associated with a higher (lower) likelihood of subsequent Type 2 (1) errors.

On balance, the evidence from audit reports and earnings properties supports the conclusion that aggressive or conservative audit reporting is a systematic partner attribute and not randomly distributed across engagements within a firm (or office).

The second objective of our study is to examine whether the market recognizes and prices differences in engagement partner reporting styles. Beyer and Sridhar (2006) show analytically that the value of a client firm depends on the publicly observable audit report for that client as well as the audit reports of all the other clients of the same auditor. That is, reporting errors on one client can increase the information risk of other clients with the same audit partner. In turn, increased information risk arising from low auditor quality is likely to increase a firm's cost of capital (Jensen and Meckling 1976, Amihud and Mendelson 1986, Coles and Lowenstein 1988, Diamond and Verrecchia 1991, Botosan 1997). We find that the market penalizes client firms susceptible to aggressive audit partner reporting decisions through higher implicit interest rates, lower credit ratings, and higher assessed likelihood of insolvency for private clients in the portfolio of auditors with a history of Type 2 reporting errors (and in the portfolio of auditors' who have previously accepted aggressive accounting accrual estimates). Similarly, we find that publicly listed companies of auditors with an aggressive reporting style (i.e. prior Type 2 reporting errors and prior aggressive accounting

accrual estimates) are associated with a lower Tobin's Q, implying that the market discounts the valuation of these companies.

Overall, our study contributes to the emerging literature that examines the effects of individual auditors on audit outcomes. We provide evidence that aggressive or conservative reporting varies systematically across individual auditors and persists over time.[4] Such differences could be due to systematic differences in risk tolerance or decisions made during the course of the audit (e.g., materiality levels).[5] Further, differences in audit partner reporting can have economic consequences for a client who needs to raise capital from the market. Taken together, these results suggest that disclosure of the engagement partner may provide useful information to the users of financial statements. Further, from the perspective of the audit firm and regulators, it is important to understand the extent of variations in auditor behavior so that quality-control resources can be allocated to improve the average quality of the firm as a whole (Francis and Michas 2013).

The remainder of the paper is organized as follows: Section 2 reviews the relevant literature and develops the hypotheses. Section 3 describes the data and the research design. Section 4 presents descriptive statistics and reports our primary results. Section 5 describes additional analyses, while Section 6 concludes the study.

[4] Francis and Michas (2013) employ a similar approach with office-level data from the U.S. and report evidence that local offices with at least one audit failure in a year are more likely to be associated with other concurrent and future audit failures. However, our findings on audit quality variation at the level of individual auditors are incremental to the office-level findings in Francis and Michas (2013).

[5] Research in financial accounting also suggests that differences in management "style" can explain differences in the quality of accounting decisions in companies (Bamber et al 2010; Bertrand and Schoar 2003). These papers consider the existence of fixed effects of managers in evaluating accounting decisions. Gul et al (2013) apply a similar type of methodology to audit partners. However, using the common fixed effects methodology is also problematic. Fee, Hadlock and Pierce (2013) demonstrate that standard F-tests are not appropriate for identifying individual's style effects. Hence, in contrast to Gul et al. (2013), we do not rely on fixed effects to examine variation in individual auditor outcomes. We also extend our analysis to consider the economic consequences of differences in partner quality.

2. Literature Review and Hypotheses

2.1. Audit Reporting Decisions at the Partner Level

Individual auditor decisions are constrained by numerous quality control measures imposed by an audit firm such as internal quality review, second partner signoff, and technical consultations. Nevertheless, since many audit decisions are made by individuals and teams in the field, it is quite possible that quality varies across engagements within a firm.[6] There are different levels of aggregation—office, team, individual—that might have an effect on audit quality. For example, a number of studies using office-level data from the U.S. have found that audit quality is affected by the characteristics of individual offices such as their size and collective industry expertise, i.e., audit quality is higher in larger offices (Francis and Yu 2009; Choi et al. 2010; Francis, Michas and Yu 2012) and offices with greater industry expertise (Reichelt and Wang 2010). Francis and Yu (2009) suggest that larger offices possess more collective human capital explaining the higher level of audit quality.[7] Other researchers have argued that differences across individual auditors can also influence audit quality (DeFond and Francis 2005; Nelson and Tan 2005; Church et al. 2008; Francis 2011; and Zerni 2012). Kilgore et al. (2012) report evidence from an Australian survey that users of financial statements (e.g., audit committee members, financial analysts and fund managers) perceive engagement partner and audit team attributes as more important than audit firm attributes. Because auditing is inherently a judgment and decision-making process, it can be argued that

[6] It is interesting to note that the vast majority of literature on audit fees and production assume that audit quality does *not* vary across engagements within a firm and is conditional on the brand name of the firm conducting an audit (Simunic 1980, Hay et al 2005). The traditional assumption is based on the view that audits are a form of experience good and, as a result, deviations in quality will be revealed *ex post* creating incentives for consistent quality on an *ex ante* basis. More recently, credence theory as applied to auditing (Causholli et al 2013) suggests that audit quality can, in fact, be idiosyncratic across engagements and, by implication, across auditors.

[7] Knechel, Rouse and Schelleman (2009) report that audit efficiency can also vary across offices.

audit quality is ultimately dependent on the abilities of individual auditors (Nelson and Tan 2005; Nelson 2009).

In this study, we focus on systematic differences in auditor aggressive or conservative reporting. Knechel (2000) notes that individual auditors differ in terms of incentives, risk preferences, expertise, problem-solving abilities, and cognitive abilities. An increasing number of archival studies report evidence that audit outcomes can be influenced by the engagement partner (Carey and Simnett 2006; Chen, Lin, and Lin 2008; Chi et al. 2009; Zerni 2012; Gul et al. 2013).[8] On one hand, accounting firms are likely to have processes and procedures in place to prevent severe breakdowns in audit quality (e.g., reviews, incentives, training), and as a result engagement partner quality can change over time. On the other hand, engagement partners may exhibit a pattern in reporting style due to idiosyncratic personal attributes like for instance risk tolerance, level of integrity and overconfidence (Cronqvist, Makhija and Yonker 2012; Graham, Harvey and Puri 2012; Davidson, Dey and Smith 2013). Hence, it is an open question whether differences in the approach of different engagement partners' to audit reporting are randomly distributed or systematically influence reporting decisions across time and clients. If an individual audit partner systematically influences aggressive or conservative audit reporting beyond general firm and office effects, differences would be expected to be observed across a partner's client portfolio over time, leading to our first hypothesis:

> *Hypothesis 1: Aggressive or conservative audit reporting is systematically influenced by individual engagement partners across clients and over time.*

[8] Emerging research on the individual auditor differences is similar to a broader stream of literature that suggests that styles of CEOs and CFOs affect firm performance and strategic decisions (Bertrand and Schoar 2003; Bamber, Jiang and Wang 2010; Dyreng, Hanlon and Maydew 2010; Kachelmeier 2010; Ge, Matsumoto and Zhang 2011; Cronqvist, Makhija and Yonker 2012; Graham, Harvey and Puri 2012; Davidson, Dey and Smith 2013). The underlying rationale in these studies is based on the upper echelons theory (Hambrick and Mason 1984) noting that it is people, rather than corporations, who make decisions (Bamber et al. 2010; Dyreng et al. 2010; Kachelmeier 2010).

In our main analysis, we measure aggressive or conservative audit reporting in two ways. First, we consider the possibility that a high frequency of prior audit reporting failures at the engagement partner level indicates a systematic problem whether due to the low auditor competence or a lack of professional integrity (Francis and Michas 2013). That is, we consider the possibility that the occurrence of a reporting error for one client will be associated with an increased likelihood of *similar* errors over time for *other* clients of the same partner. To examine whether individual quality differences are persistent, we use the history of an individual auditor's misreporting related to *first-time* going concern opinions to proxy for audit quality. Following Lennox (1999) and Francis (2011a), auditors are considered to report accurately when: (1) a client failure is preceded by a going-concern opinion (GCO) or (2) a client that does not fail receives an unmodified clean opinion. Not issuing a GCO to a failing client is labeled as a Type 2 error, while issuing a GCO to a non-failing client is a Type 1 error. While reporting errors may be randomly distributed across partners and between Type 1 and 2 errors, we believe that personal partner attributes such as overconfidence (Pincus 1991; Kennedy and Peecher 1997; Messier et al. 2008) and attitudes towards risk (Farmer 1993) may induce a pattern of auditor reporting over time, i.e., auditors that have made Type 1 (Type 2) errors in the past are more likely to make Type 1 (Type 2) errors in the future. If an engagement partner is consistently conservative or aggressive in reporting decisions higher levels of Type I errors are likely to be associated with lower levels of Type II errors and vice versa.[9]

[9] We use *first-time* GCOs for a specific client to address the fact that audit opinions and poor financial performance tend to be persistent over time (e.g., Lennox, 2000).

Our second proxy for aggressive or conservative audit reporting is based on the properties of the clients' earnings on which an auditor opines.[10] External audits play an important role in the application of appropriate accrual-based accounting by enhancing the reliability of accounting estimates (Maines and Wahlen 2006; Minnis 2011). Accruals offer flexibility in financial reporting because accruals are estimates of unobservable cash outcomes at the time of reporting (Ball and Shivakumar 2005). Due to the extent of judgment involved in estimating accruals, the recorded amounts are subject to potential measurement error (or deliberate manipulation). The audit process is expected to provide reasonable assurance that financial reports are fairly stated and can be reliably used to assess the level and riskiness of current and future cash flows of the firm. Accordingly, high quality audits are expected to increase the extent to which accruals predict future cash flows. The better the predictive ability of current accrual-based earnings, the higher quality is the financial reporting (and audit). In this paper, we examine whether the financial statements of clients of partners who have a history of GCO reporting errors also have low quality earnings. Similarly, we also test whether past levels of abnormal accruals is predictive for future GCO accuracy. We use the methodology developed by Barth, Cram and Nelson (2001) to examine the ability of components of current accrual-based net income to predict one-year ahead operating cash flows *conditional on prior reporting errors*. As an alternative measure for earnings quality, we also use abnormal accruals.

2.2. Economic Consequences of Audit Partner Reporting Decisions

[10] Using earnings properties as a measure of audit quality has the disadvantage that it is the joint product of management and auditor decisions. However, the advantage is that the use of the client firms' earnings properties, measured with continuous variables, provides a broader continuum of audit quality from low- to high-quality audits (Francis 2011).

Reliable financial reporting can reduce a firm's cost of capital by decreasing investors' and creditors' information risk (Jensen and Meckling 1976; Coles and Lowenstein 1988; Diamond and Verrecchia 1991; Botosan 1997; Sengupta 1998; Lambert et al. 2007). Thus, more credible financial reporting can provide an economic benefit to the client of a high quality auditor in the form of better stock returns or lower cost of debt. Evidence from surveys and experimental research suggests that users of accounting information, such as bank loan officers, consider audited financial statements to be more credible than non-audited financial statements (Reckers and Pany 1979, McKinley, Pany, and Reckers 1985; Pillsbury 1985; Strawser 1991). Archival research reports similar findings, e.g., the cost of debt capital is lower among clients of Big N audit firms and companies with voluntary audits than for companies without voluntary audits (Kim et al. 2011; Minnis 2011).[11] Thus, perceived audit quality is likely to have a direct effect on the perceived credibility of the information in a financial report.[12]

Since our main analyses are focused on a large sample of private companies, we extend this line of research by investigating whether creditors and credit raters consider audit reporting decisions associated with *individual auditors* when assessing the credit-worthiness of a potential borrower. Our use of credit risk measures to proxy for the economic consequences of auditor reporting style is motivated by the central role of bank finance in private firms (e.g.,

[11] In a similar vein, Weber, Willenborg and Zhang (2008) examine the stock and audit market effects associated with an audit failure involving ComROAD, a public client of KPMG Germany. They report that KPMG's other German clients experienced an average of -3% cumulative returns during the ten days surrounding the event. Skinner and Srinivasan (2012) examine the events surrounding ChuoAoyama's (PwC's Japanese affiliate) failed audit of Kanebo and report that about 25 percent of ChuoAoyama's audit clients switched to other audit firms suggesting the importance of auditors' reputation on audit quality.

[12] The theory of source credibility has been employed in many studies. Bamber (1983) finds evidence that audit managers consider the credibility of their subordinates when evaluating their work. Prior studies have also reported that auditors are sensitive to the source of audit evidence (Beaulieu 2001; Goodwin 1999; Goodwin and Trotman 1996; Hirst 1994a, 1994b), and that auditors' assessment of management credibility is the central factor in audit planning (Beaulieu 2001; Hirst 1994b; Kizirian et al. 2005; Shaub 1996).

Berger and Udell 1998).[13] Appointment of an engagement partner that is observably aggressive or conservative may affect the perceived quality of financial disclosure (Titman and Trueman, 1986). Consistent with this view, Beyer and Sridhar (2006) show that the quality of an auditor is revealed over time as the auditor issues more and more reports, which may influence how a user interprets information in the financial statement. These observations suggest that knowing the identity of the engagement partner and the quality of their performance over time will have economic consequences and influence the decisions of users of financial statements, in this case creditors. Further, prior evidence from research on source credibility research (King, Davis and Mintchik 2012) suggests that disclosure of partner identity will likely increase audit quality in appearance. This leads to our second hypothesis:

> *H2: Observable audit partner reporting decisions are associated with the market-perceived credit risk and cost of debt of a client.*

As noted above, access to the credit market is often crucial for the viability of privately held companies. Hence, we use a number of creditor-related metrics to assess the economic consequences of variations in reporting across partners.[14] There is strong evidence that credit ratings affect a borrower's cost of debt. Ederington and Goh (1998) and Hand, Holthausen and Leftwich (1992) report that companies experience negative economic consequences upon the

[13] Privately-held companies generally produce little public information (Ball and Shivakumar 2005; Burgstahler et al. 2006). However, it should be noted that Sweden requires all private companies to file their audited financial statements making them publicly available. Even though Ball and Shivakumar (2005) argue that private companies communicate with banks on a private, "insider" basis, there is vast amount of evidence that audited financial statements are still important to banks and other creditors. For instance, in a survey of the Financial Executives International's Committee on Private Companies, a majority of the participating banks required *audited* financial statements from companies applying for credit (Sinnett and Graziano 2006). Firth (1980) reports that UK bank loan officers grant significantly smaller loans to companies receiving going-concern audit opinions, while Bamber and Stratton (1997) find that clients receiving a GCO are less likely to be granted a loan and pay higher interest rates. Dúrendez Gómez-Guillamón (2003) finds that Spanish credit institutions consider the audit report to be crucial for loan decisions.

[14] Cassar (2011) notes that research on private company lending suggests that third-party credit scores provide an alternative channel for reducing information asymmetries by offering lenders a cost-effective and timely means of monitoring borrowers (Petersen and Rajan 2002; Berger and Frame 2007).

announcement of credit rating downgrades. Furthermore, several other studies report that the spread on credit default swaps (CDS) for a company is negatively related to its credit rating (Hull, Predescu and White 2004; Norden and Weber 2004). For this study, we use independent credit ratings because they are widely available for many types of firms in Sweden. We also examine forecasts of default for individual companies issued by a credit rating agency. Finally, we also estimate the cost of debt for individual companies (e.g., Minnis 2011, Kim et al. 2011, Pittman and Fortin 2004 and Mansi, Maxwell and Miller 2004).[15]

3. Research Methodology

3.1. Data description

We conduct this study using data from Sweden for a number of reasons. First, because of the statutory audit requirement in Sweden, all businesses (other than sole traders and sole proprietorships) are required to produce publicly available financial statements.[16] Second, Sweden has long required the audit partner to sign the issued audit opinion so individual partner data are available over an extended period of time. Third, we are also able to identify many attributes of individual partners from regulatory filings. These conditions enable us to construct the total client portfolio for a large sample of individual auditors in Big 4 firms in Sweden. This is important because it allows us to examine the pattern of audit quality for an individual audit partner across all of their clients and across time. Information on the individual

[15] As will be discussed in more detail below, our analyses of economic consequences focuses on privately owned firms where borrowing costs are usually more important than the implicit cost of equity. We also present a substantial analysis of publicly-listed companies in our supplemental results.

[16] During our data period from 2001-2008, all public and private Swedish companies regardless of their size were required to be audited. In 2008, there were around 330,000 audits of limited liability companies conducted by a total of 4,108 individual auditors (SOU 2008:32, p.134). Effective in November 1, 2010, statutory audits are required for companies meeting at least two of the following criteria: (i) average number of employees more than 3, (ii) total assets of more than 1.5 million SEK, and (iii) sales of more than 3 million SEK. Company accounts must be filed annually within seven months of the year end and are available to the public when filed.

auditor identities is obtained from the annual files of *Finansinspektionen* (Swedish Financial Supervisory Authority). The data includes all auditors who acted either as an auditor-in-charge of an engagement or as a deputy auditor for at least one listed company during the period 2001to 2008. The office locations of the individual auditors and the dates that they received their auditor certification come from the records of *Revisorsnämnden* (The Supervisory Board of Public Accountants, or SBPA, within the Ministry of Justice). For privately held firms, all client-specific financial information and information about bankruptcy filings, credit ratings and risk forecasts are retrieved from the files of UC AB, a leading business and credit information agency owned by the major Swedish banks.

For this study, we require an auditor to appear in the sample for a *minimum* of four consecutive years. We use the first two years to calculate prior error frequencies. We use subsequent years for our empirical tests (i.e., in year 2008, error frequencies are based on the prior seven years if an auditor appears in the data each year). This method is similar to the one implicitly suggested by Beyer and Sridhar (2006) and assumes that the quality of an auditor is revealed over time. We exclude clients of non-Big 4 auditors and clients employing joint auditors to rule out confounding audit firm effects because it is commonly argued that large audit firms have incentives to provide higher-quality audits (DeAngelo 1981; Teoh and Wong 1993). Following prior research, we exclude observations from the finance and insurance industries due to their unique accounting presentation and regulations (Butler, Leone and Willenborg 2004; Carey and Simnett 2006). We also delete firm years with negative total assets since several of the proxies are scaled by total assets. We also omit observations with leverage

ratios less than zero which lack a meaningful interpretation (Cai and Zhang 2011).[17] The number of observations varies among the different tests due to the use of different subsamples and limitations arising from the calculations of the dependent and explanatory variables. Table 1 summarizes the sample selection process.

<<<<< Insert Table 1 about here >>>>>

3.2. Tests of systematic differences in audit partner reporting decisions (Hypothesis 1)

Audit reports as a proxy for audit partner reporting style: We first test Hypothesis 1 by examining whether prior audit reporting failures related to going concern opinions are associated with *similar* failures for other clients in the future. We use only *first-time* GCOs because audit reporting is highly persistent (Lennox, 2000).[18] We also control for numerous client characteristics that are expected to affect the likelihood of an auditor issuing a GCO, e.g., leverage, unpaid debts and the risk of clients becoming insolvent within the next 12 months. We use three different samples to test for the persistence of Type 1 reporting failures: (1) all non-bankrupt companies, (2) non-bankrupt companies with low default risk, and (3) non-bankrupt-companies with high default risk. The use of different subsamples helps to mitigate the concern that the results may be driven by systematic risk differences across auditor clienteles. To test persistence of Type 2 reporting failures, we employ a sample of companies filing for bankruptcy within 12 months of the issuance of financial statements.

Formally, we estimate the following logistic model for each sample:

[17] As an additional check for sensitivity of our results to extreme values, we either winsorize or trim all firm-specific continuous variables at their 1 and 99 percentile levels (except for financial leverage—*DTA* is winsorized or trimmed only at the 99th percentile as observations with negative total liabilities are excluded). All our main findings remain qualitatively similar to those reported.

[18] To be clear, for our test period, we only consider GCOs issued for companies that did not receive a GCO in the "estimation period", ranging from two to seven years, and used to capture a partner's reporting error rates.

$$\phi^{-1}(PROB(FAIL)) = a + \beta_1 PRIOR\_FAIL1 + \beta_2 PRIOR\_FAIL2 + \nu'X + \nu'Z + fixed\ effects + \varepsilon \quad (1)$$

where *FAIL* is an indicator variable for a Type 1 or Type 2 audit reporting error in fiscal year *t*. *PRIOR_FAIL1* is the cumulative number of companies for which an auditor issued a GCO but which *did not file for bankruptcy* within 12 months from the issuance of the financial statements, divided by the number of all the auditor engagements (excluding bankruptcies) until the end of year *t-1*.[19] *PRIOR_FAIL2* is the cumulative number of companies that *filed for bankruptcy* within 12 months of the issuance of the financial statements for whom the auditor *did not* issue a going concern report, divided by the number of all the auditor client companies that filed for bankruptcy within 12 months of the issuance of the financial statements until the end of year *t-1*.[20] We note that the historic partner reporting failures are calculated using all client companies of that partner excluding the client company that is observed. Otherwise, persistence could reflect a client's fixed effect rather than the partner fixed effect.

In a secondary analysis based on a partner's prior judgments about client firms' accrual estimates, we replace *PRIOR_FAIL1* with *PRIOR_NEGDACC* and *PRIOR_FAIL2* with *PRIOR_POSDACC*. We define *PRIOR_POSDACC* (*PRIOR_NEGDACC*) as equal to the cumulative median value of past absolute median abnormal accruals during the estimation period if they are positive (negative), otherwise zero. As in GCOs, we estimate the past

[19] We tested two other specifications of *PRIOR_FAIL1*: (i) the cumulative number of going concern reports for low-risk companies that did not file for bankruptcy within 12 months of the issuance of the financial statements divided by the number of all low-risk auditor engagements for the period 2001-*t-1* and (ii) the cumulative number of going concern reports for financially distressed companies that did not file for bankruptcy within 12 months of the issuance of the financial statements divided by the number of all the financially distressed engagements for the period 2001-*t-1*. For the definitions of low-risk and financially distressed firms, we refer the reader to Section 4.2. In these untabulated analyses, our main findings remain qualitatively similar to those reported.

[20] The results are essentially the same if we use a time frame of 24 months or exclude observations that filed for bankruptcy after 12 months from the issuance of the financial statements (and before the end of 2008). Swedish liquidating bankruptcy is similar to Chapter 7 of the U.S Bankruptcy Code and the liquidation procedures in the U.K. (see Couwenberg 2001).

auditor-specific median signed abnormal accruals for all prior clients of an auditor excluding the company under observation using data ranging from two to seven years.

The vector *X* includes firm-specific characteristics that affect the propensity of an auditor to issue a going-concern opinion (Dopuch et al. 1987; DeFond et al. 1999; DeFond et al. 2002; Geiger and Raghunandan 2001, 2002; Geiger et al. 2005; Wang et al. 2008; Li 2009; Feldmann and Read, 2010; Chen et al. 2011). Larger and older companies tend to have more stable operations so we include the natural log of total assets (*SIZE*) and the natural log of firm age (*LOGAGE*). To control for liquidity and overall client risk, we include the ratio of cash to total liabilities (*LIQUI*), the risk that the firm will become insolvent during the next 12 months as forecasted by a credit rating agency (*RISK* which can range from 0.01 percent to 99.9 percent), the ratio of debt to total assets (*DTA*), and an indicator variable if the company's equity capital is less than half of the share capital (*EQ_HALF*).[21] We add the ratio of unpaid debts to total assets (*UNPAID_DEBTS*) as a control for a firm's risk of insolvency.[22] We include the ratio of inventories and receivables to total assets since these accounts require extensive auditor judgment (Simunic 1980; Feroz, Park and Pastena 1991). We control for mean board tenure (*BOARD_TENURE*) and the existence of a controlling shareholder with an ownership stake of 25+ percent (*CONTROL*) to reflect more stable operations and lower risk of bankruptcy. Financially troubled firms tend to have a longer reporting lag so we add *REPLAG* defined as the natural log of the number of days between fiscal year end and the date when the financial report was filed with the Swedish company register Bolagsverket (Louwers 1998).

[21] Under these circumstances, a company is highly distressed and, according to auditor guidance in Sweden, the auditor should virtually always issue a GCO.

[22] *UNPAID_DEBTS* represent the amounts of borrowed funds (or bills) that have not been repaid (paid) that are in dispute or have been turned over to a collection agency. These amounts may relate to a legal action for collection, judgment by consent, attachment of property or earnings, or insolvency. This information is publicly disclosed in the financial press and limits the possibilities for obtaining credit in the future.

Vector *Z* includes auditor-related variables that can affect the propensity of an auditor to issue a going-concern opinion. We include *OFFSIZE* to control for the potential effects of office size (Francis and Yu 2009; Choi et al. 2010; Reichelt and Wang 2010; Francis et al. 2012), defined as the natural log of the number of auditors in the office. We also control for the effects of auditor tenure (*TENURE*) (Knechel and Vanstraelen 2007). To control for heterogeneity in auditor experience, we include *CAREER*, defined as the number of years since the auditor's certification date (Carson et al. 2012). Sundgren and Svanström (2013) report that the number of clients is negatively associated with an auditor's decision to issue a GCO so we include the natural logarithm of a partner's total number of clients (*NBR_CLIENTS*). Because auditors may consult with colleagues and experts, we also add controls for firm-level audit quality. More specifically, *PRIOR_FAIL2_FIRM* and *PRIOR_FAIL1_FIRM* represent quality at the firm level excluding the auditor under observation. Finally, we add dummy variables for different industries and years to control for potential industry and time effects.

Earnings properties as a proxy for audit partner reporting style: We also test Hypothesis 1 using a model that examines differences across partners in the predictability of operating cash flows and the persistence of earnings conditional on prior reporting errors. In particular, we estimate the following model based on Barth et al. (2001) and recently used by Minnis (2011):

$$\begin{aligned} OCF_{j,t+1} &= a + \beta_1 ACCR_{j,t} + \beta_2 OCF_{j,t} + \beta_3 PRIOR\_FAIL1_t + \beta_4 PRIOR\_FAIL2_t \\ &+ \beta_5 ACCR_t \times PRIOR\_FAIL1_t + \beta_6 ACCR_t \times PRIOR\_FAIL2_t \\ &+ \beta_7 OCF_t \times PRIOR\_FAIL1_t + \beta_8 OCF_t \times PRIOR\_FAIL2_t + \beta_9 SIZE_t \\ &+ \beta_{10} DTA_t + \beta_{11} GROWTH_t + \textit{fixed effects} + \varepsilon_{j,t} \end{aligned} \quad (2)$$

where *OCF* is operating cash flow component of the earnings, which is defined as the difference between accrual-based net income before extraordinary items (*NI*) and accounting

accruals (*ACCR*). The accruals are calculated using the balance sheet approach[23] and are defined as the change in the noncash current assets minus the change in the current noninterest bearing liabilities minus depreciation and amortization. *GROWTH* is the one-year growth in total assets. All the variables are scaled by the opening balance of total assets. A major advantage of this test is that it controls for cash flow persistence and provides a within-firm control for omitted variables that could affect the cross-firm heterogeneity in the persistence of accruals.[24]

3.3. Tests of economic consequences of audit partner reporting decisions (Hypothesis 2)

To test Hypothesis 2, which addresses the economic consequences of variations in audit partner reporting decisions, we examine firm-specific credit ratings, 12-month forecasts of insolvency, and implicit debt rates. We estimate the following model based on Mansi, Maxwell and Miller (2004), Ashbaugh-Skaife et al. (2006), Kim et al. (2011), and Minnis (2011) using the restricted maximum likelihood principle (REML):[25]

$$CREDITRISK = a + \mu_i + \beta_1 PRIOR\_FAIL1 + \beta_2 PRIOR\_FAIL2 + \nu' V + \nu' Z + fixed\ effects + \varepsilon \quad (3)$$

[23] We note that the dataset for privately held companies does not contain cash flow statement data. In our subsequent analyses of publicly-listed companies, *OCF* is defined as the operating cash flows taken from the cash flow statement, while *ACCR* is defined as the difference between net income and operating cash flows.

[24] With this approach we can test whether differences in the persistence of accruals are due to cash flows, accruals or both. If the observed differences are entirely due to more persistent cash flows, this could be attributed to variations in the underlying business fundamentals rather than differences in audit quality regarding accrual estimates (Minnis 2011). By contrast, lower persistency of accruals (mapping into future cash flows) imply more measurement error in auditor accepted accrual estimates. Another advantage compared to other commonly used proxies for audit quality, such as abnormal accruals, is that accruals are directly observable and do not need to be estimated. Finally, by "within-firm firm control" we mean the following: given that a client firm's operating cash flow and the accrual generating process remains relatively stable in the short run, our test based on Barth et al. (2001), provides a within-firm control for omitted variables.

[25] Models that include fixed and random effects are called mixed models. The coefficients of the time-varying explanatory variables are assumed fixed, while the firm-specific intercept terms are assumed to be normally distributed random variables, independent of the observation-specific error terms. The fixed regression coefficients and the variance parameters can be estimated with a maximum likelihood method (ML) or the oft-preferred restricted maximum likelihood method (REML). Because our model contains no dynamic elements, we choose the latter method.

where the dependent variable *CREDITRISK* is one of the following:

- *CRATE*, which is UC AB's credit rating for the client firm on an ordinal scale of 1 to 5 with higher values indicating lower credit risk.[26]

- *RISK*, which represents UC AB's 12-month risk forecast for a client firm on a scale from 0.01 to 99.9 percent with higher values indicating a higher insolvency risk.[27]

- *DEBTRATE*, which is defined as a firm's interest expense divided by the average amount of debt for the year. *DEBTRATE* is estimated indirectly from financial statements.

We include the indicators of prior reporting errors (*PRIOR_FAIL1*, *PRIOR_FAIL2*) as our test variables and the vectors *V* and *Z* for firm- and auditor-specific characteristics, respectively. Parameter μ_i denotes a random firm-specific intercept used to capture the effect of various unobservable factors on firm-specific credit risk.[28]

Firm-specific control variables include size (*SIZE*), leverage (*DTA*), firm profitability (*ROA*), indicator variables for the presence of a controlling shareholder (*CONTROL*), loan priority over other interested parties in case of bankruptcy (*PRIORITY*), and firm age (*LOGAGE*). We include indicator variables for going concern (*GCO*) and otherwise modified (*MODIF*) audit opinions. We also include an indicator variable if the company's equity capital is less than half of the share capital (*EQ_HALF*). We add the ratio of unpaid debts to total assets (*UNPAID_DEBTS*), mean board tenure (*BOARD_TENURE*), and reporting lag (*REPLAG*). We include property, plant and equipment to total assets (*PPE*), which represents the extent of tangible assets in place (i.e., collateral) that could be liquidated to repay

[26] For the discrete dependent variable, *CRATE*, we employ an ordered logit model; for the two other specifications; we use the standard restricted maximum likelihood estimation method.
[27] The UC AB considers a broad set of information on financial performance and conditions when defining credit rates/risk forecasts. According to the UC AB's description, "Risk Forecast states how great the probability is (in percentages) that a company will become insolvent within the next year, i.e., it states with great precision the risk that the company will be unable to fulfill its payment obligations". UC AB considers accounting information, key ratios, payment complaints, board information and ownership structure, among others.
[28] Note that we cannot include the random firm-specific intercept for the discrete dependent variable *CRATE*.

outstanding debts in the event of default (Mansi, Maxwell and Miller 2004; Kim et al. 2011; Chi et al. 2011; Minnis 2011). Finally, vector *Z* includes the natural logarithm of auditor clients (*NBR_CLIENTS*), auditor career length (*CAREER*), engagement tenure (*TENURE*), firm-level reporting failure rates (*PRIOR_FAIL2_FIRM* and *PRIOR_FAIL1_FIRM*)[29] and office size (*OFFSIZE*). The model also includes industry and time effects.

3.4 A Note on Endogeneity

We acknowledge that clients are unlikely to be randomly assigned to partners and this presents a potential endogeneity issue (Lawrence, Minutti-Meza and Zhang 2011). In the absence of proper instrumental variables, traditional methods to address endogeneity such as 2SLS are not helpful in our setting as it is not clear what exclusion restrictions to employ to identify causality (Larcker and Rusticus 2010, Lennox, Francis and Wang 2012). Apart from the fact that controlling for company fixed effects is not possible due to the binary nature of some of our dependent variables, we do not use the fixed effects methodology of Bertrand and Schoar (2003) since Fee, Hadlock and Pierce (2013) have recently shown that the F-tests for the statistical significance of the fixed effects for individuals can be biased. Wooldridge (2002) cautions that the use of F-tests for testing significance of a large set of individual effects requires strict assumptions about the error terms. Using simulated data constructed to have no fixed effects, Fee et al. (2013), nevertheless obtain significant F-statistics for dummy variables used to detect individual styles. They conclude that "their evidence strongly suggests that F-

[29] Similarly, we use *PRIOR_POSDACC_FIRM* and *PRIOR_NEGDACC_FIRM* to control for firm-wide effects of accrual estimates on credit risk.

tests on manager-specific dummy variables are not valid indicators of managerial-style effects" (Fee et al. 2013, p.570).[30]

4. Results

4.1. Descriptive statistics

Table 2 reports the descriptive statistics for the variables of interest for the sample of privately held companies. On average, liabilities represent about two-thirds of total assets, with a median of 71 percent, indicating that this market segment is highly leveraged. The high level of financial leverage supports our choice of credit risk measures to examine the economic consequences of perceived audit quality. The mean (median) client credit rating is 3.992 (4.0), indicating a low risk of insolvency, which is also supported by the low assessed risk of default (mean/median of 1.889/0.490). The cost of debt has a mean (median) of 4.4 percent (3.2 percent) but varies dramatically across the sample with minimum and maximum values of 1.0 percent and 58.7 percent.[31] We observe that the probability of an auditor erroneously issuing a GCO to a non-failing client (Type 1 error) is about 4.2 percent, and the probability of having a similar previous reporting error is 4.1 percent. The 25th percentile likelihood of a Type 1 error is zero suggesting some clustering across partners. This observation is consistent with Hypothesis 1, which predicts that audit reporting failures are non-random. For the subsample of bankrupt clients (N = 922), there is a 76.8 percent likelihood that an auditor does not issue a

[30] We note that Gul et al. (2013) findings on the effects that individual auditors have on audit quality largely rely on the fixed effects methodology of Bertrand and Schoar (2003). Given the findings of Fee et al. (2013) that the significance levels of the fixed effects are severely overstated, our study provides further insight on the effects that individual auditors have on audit outcomes.

[31] We also adjusted for outliers by either winsorizing or dropping observations with extreme values. We also conducted several additional sensitivity checks to adjust for outliers, including variable transformations, which consistently support our main findings.

GCO opinion to a failing client (Type 2 error), while the likelihood of a prior Type 2 error is also high at 66.9 percent.

For the control variables, the descriptive statistics indicate that 46.8 percent of the companies in the sample have an identifiable controlling owner that holds at least a 25 percent ownership stake. Equity capital is less than half of the share capital for 3.1 percent of the firms. The average (median) ratio of cash to total liabilities is 0.794 (0.160), the ratio of inventory and receivables to total assets is 0.288 (0.270), and the ratio of plant and equipment to total assets is 0.368 (0.268). The mean (median) return on assets is 3.2 percent (3.4 percent). The mean (median) engagement partner tenure is 5.86 (5) years and ranges from 1 to 18 years. The auditors that are included in the sample have a high level of experience, with an average (median) of 18.76 (19) years since their certification. Also, 9.2 percent of the sample received a modified audit opinion, of which 5.4 percent are going concern opinions.

<<<<< Insert Table 2 about here >>>>>

Table 3 reports pair-wise correlations between variables employed in our empirical tests for private companies. Panel A, B, and C of Table 3 report the Pearson correlations for the variables used to estimate Equations (1), (2) and (3), respectively. In Panel A, only the Type 2 audit reporting errors correlate positively with the frequency of similar errors in the past. This correlation also provides some preliminary support for Hypothesis 1. The correlation between our proxies for auditor quality *PRIOR_FAIL2* and *PRIOR_POSDACC* is 0.328, while the corresponding figure between *PRIOR_FAIL1* and *PRIOR_NEGDACC* is 0.474. In Panel B, we see that there is a strong negative relationship between current operating cash flows and accruals (-0.703). Moreover, consistent with Sloan (1996), the correlation coefficient between current operating cash flows and future operating cash flows is larger (0.309) than the

corresponding coefficient between current accruals and future operating cash flows (0.202). In Panel C, the frequencies of both types of reporting errors are associated with our proxies for increased information risk (i.e., credit ratings, risk forecasts, and implicit interest rates). This is consistent with Hypothesis 2. Implicit debt rates are only modestly correlated with credit ratings and risk forecasts. All variance inflation factors (VIF) are below 6, indicating there are no problems related to multicollinearity (Judge et al. 1988).

<<<<< Insert Table 3 about here >>>>>

4.2. Persistence of auditor reporting failures related to going concern opinions

Table 4 presents the results of estimating Equation (1) for first-time GCOs subdivided in the sample of bankrupt and non-bankrupt companies. Column (1) presents the results for the full sample of non-bankrupt companies (n=22,971). Since it is possible that certain auditors have systematically more risky clients, we also perform analyses of subsamples with low and high risk companies to mitigate the concern that our results would be driven by the non-random matching of auditors and clients. Accordingly, column (2) presents the results for the non-bankrupt firms with low default risk (n=20,127), and column (3) presents the results for non-bankrupt financially distressed firms (n=2,844). Low-risk firms are defined as those whose UC-AB insolvency risk forecast is below 3.05 percent, while high risk firms are those whose insolvency risk forecast 3.05 or higher.[32] Note that we exclude bankrupt companies from the analysis in columns (1)-(3). Column (4) reports the results for the Type 2 audit reporting failures (n=922) among the subsample of the companies that filed for bankruptcy within 12

[32] According to the UC AB's own definition companies with 3.05 percent or higher estimated likelihood of insolvency are classified as risky or highly risky. We also use the methodology employed in Defond, Raghunandan and Subramanyam (2002) and classify firms as distressed if they report either negative earnings or operating cash flows during the current fiscal year. Results from these analyses are qualitatively similar to those reported in columns (3) of Tables 4 and 5.

months of issuance of the audited financial statements. The likelihood ratios for all models are statistically significant ($p<0.001$).

The results for our control variables indicate that auditors are less likely to experience Type 1 reporting errors for large and more liquid companies. Further, high risk—measured by the degree of financial leverage, unpaid debts, equity capital lower than half of share capital, the credit rating agency's risk forecast, and reporting lag—are all associated with an increase in the probability of Type 1 error. For Type 2 errors, column (4) reveals that large companies with better liquidity are less likely to receive a GCO when they subsequently go bankrupt. Moreover, the risk forecast, unpaid debts, reporting lag and equity capital lower than half of the share capital are negatively associated with the likelihood of a Type 2 error. Also, Type 2 errors appear to be less likely when auditor tenure is long or there is a controlling shareholder.

Examining prior Type 1 errors first, we see that the likelihood of a current Type 1 error is positively associated with prior Type 1 errors in the first three columns (5.156, $p<.001$; 2.623, $p<.05$; 7.320, $p<.001$, respectively) after controlling for firm-wide median accuracy (which is insignificant itself). We also see in column (4), that Type 2 errors are *less* likely when there are prior Type 1 errors (-6.693, $p<.01$). This pattern of results suggests that some audit partners may be generally conservative and have a higher overall propensity to issue going concern opinions. This leads to a higher incidence of Type I errors but a lower incidence of Type 2 errors. That is, the approach to reporting of some partners causes them to be accurate more often when a client goes bankrupt but inaccurate when an at-risk company actually survives.

For Type 2 errors, we see in column (4) that such errors are more likely to occur if there have been previous Type 2 reporting errors (3.886, $p<.05$) after controlling for firm-wide

accuracy (again, not significant). We see somewhat mixed results when current Type 1 errors are linked to prior Type 2 errors. Here, we see that prior Type 2 errors are not associated with current Type 1 errors in the full and high risk samples, but there is a negative association in the low risk sample (-13.714, p<.001). The pattern for prior Type II errors suggests that some partners may be generally less conservative and have a lower overall propensity for issue going concern opinions. This leads to a higher incidence of Type II errors but a lower incidence of Type 1 errors (in some conditions). That is, the approach to reporting of some partners causes them to be accurate most often when an at-risk client does *not* go bankrupt but inaccurate when a company actually fails under low risk conditions.

<<<<< Insert Table 4 about here >>>>>

Table 5 presents similar results using partner's prior accounting decisions as reflected in past signed abnormal accruals as proxies for auditor "aggressive" and "conservative" style, respectively. The results from Table 5 indicate that past conservative auditor judgments on accounting accruals (*PRIOR_NEGDACC*) are positively associated with a higher likelihood of Type 1 auditor reporting errors (12.790, p<.01; 7.320, p<.01; 15.150, p<.01, respectively) after controlling for median firm-wide accuracy, and negatively associated with Type 2 errors (-10.004, p<.01). We also see that aggressive accounting judgments in the past (*PRIOR_POSDACC*) are positively associated with Type 2 errors (9.124, p<.01) after controlling for firm-wide accuracy of accrual estimates, and negatively associated with Type 1 errors but only in the low risk condition (-14.886, p<.01). There is no association between prior aggressive accounting decisions and GCO reporting when clients exhibit relatively serious indications of financial distress. These results are consistent with Table 4, i.e. when audit partners are generally conservative in accounting decisions they have a higher overall

propensity to issue going concern opinions with higher (lower) Type 1 (2) errors. Partners that are aggressive in their accounting decisions may have a lower propensity to issue a GCO with higher Type 2 errors and lower Type 1 errors when there is low risk of financial problems.

<<<<< Insert Table 5 about here >>>>>

Taken together, these results support Hypothesis 1 in that they indicate clear differences across partners in their individual propensity to repeatedly make Type 1 or Type 2 reporting errors, i.e., reporting errors are not random across partners. These findings suggest that prior audit reporting failures or levels of accruals are incrementally informative about the likelihood of reporting errors in future audits. Further, the documented effects for prior reporting failures are economically significant. In particular, the results in column (1) of Table 4 suggest that, *ceteris paribus*, a shift of one standard deviation in the prior Type 1 audit reporting error frequency results in a 27.4 percent increase in the predicted odds of a future Type 1 reporting error. A similar calculation for column (4) suggests that a shift of one standard deviation in the prior Type 2 audit reporting error frequency results in a 266.2 percent increase in the predicted odds of a future Type 2 reporting error.

4.3. Earnings properties

In this section, we report the results of the test for the predictability of one-year-ahead performance (proxied by operating cash flows) based on current accrual-based earnings after considering differences in partner audit reporting errors. The first Column of Table 6 Panel A presents the benchmark model without the test variables. In this model, we see that both current year operating cash flows and accruals are strong positive determinants of one-year-ahead operating cash flows. Consistent with prior research (Sloan 1996), the coefficient for *OCF* is larger than the coefficient on *ACCR* (i.e., cash flows are more persistent than accruals). In

Column (2), the coefficients for the first-order interactions between accruals and prior Type 1 (-1.0011, p<.05) and Type 2 (-0.5355, p<.05) error frequencies are negative and significant, suggesting that the predictive ability of current accruals is conditional on prior partner reporting errors. We also find that the cash flow component of earnings is less persistent for the clients of auditors with prior reporting errors (-0.8952, p<.05; -0.6415, p<.01), suggesting declining financial performance for clients of auditors with a history of misreporting. These results are, in general, consistent with Hypothesis 1.[33]

Panel B of Table 6 presents the results based on prior accounting decisions using past signed abnormal accruals as proxies for whether a partner is generally conservative or aggressive. We find that that the first-order interaction term between accruals and prior aggressive accrual estimates, *POSDACC*, is negative and significant (-2.744, p<.01). This result is consistent with Panel A and Hypothesis 1 in that a partner's involvement with prior aggressive reporting is associated with lower persistence of current accruals. Also the interaction variable between prior conservative accrual estimates, *NEGDACC*, and cash flows is negative and significant (-1.792, p<.01), while other interactions are not significant.

<<<<< Insert Table 6 about here >>>>>

4.4. Economic consequences of prior engagement partner reporting failures

Table 7 presents the results of our tests of Hypothesis 2, addressing whether the frequency of prior partner reporting failures increases the information risk of financial statement users. Column (1) reports the results for an ordered logit model with the firm-specific

[33] In untabulated analysis, we conduct one analysis by excluding all bankrupt observations and observations with false going concern reports. In a second analysis, we remove all observations that are classified as high-risk according to the UC AB's definition. In both cases, we find that our main results remain qualitatively unchanged. We conclude that our reported findings in Table 6 are robust to controlling for the potential differences in risk across clienteles of auditors with different frequencies of prior audit reporting errors.

credit rating as the dependent variable. Column (2) presents the results for the rating agency's forecast that a company will become insolvent in the following 12 months. Column (3) presents the results for the company's implicit debt rate.[34] Likelihood-ratios indicate that all models are highly significant ($p<0.01$). Furthermore, the p-values of the LR-tests (in columns 1, 3 and 4) for the random firm-specific intercepts are below 0.01 indicating that there is unobserved heterogeneity in firm-specific risk characteristics that should be controlled.

The coefficients for the client-specific control variables are mainly consistent with expectations or are insignificant. Of the auditor-specific variables, auditor tenure is associated with more favorable insolvency forecasts and better credit ratings (consistent with Mansi et al. 2004). Results for office size, auditor experience, and number of clients are weak. Both GCO and modified audit opinions are associated with lower credit ratings, higher risk and higher interest costs, but the coefficients on GCO are significantly larger than for other modified opinions ($p<.05$). Also, firm-wide effects are not significant.

As seen in Table 7, for Type 1 errors, we find no evidence that a partner's record of "false positive" signals—issuing a GCO when not needed—has an effect on any of the credit measures. However, when *PRIOR_FAIL1* is interacted with actual issuance of a GCO (Column 4), we see that the market assesses risk as *lower* for the firm (-8.496, $p<.0.10$). This finding suggests that the market discounts the auditor's report because the engagement partner has previously issued unwarranted going concern opinions so there is uncertainty whether a current

[34] We follow prior studies and truncate the *DEBTRATE* at the 5th and 95th percentiles (Mansi et al. 2004; Pittman and Fortin 2004; and Minnis 2011) due to a high level of possible measurement error. Cassar (2011) notes that implicit interest rates suffer from several important but unobserved loan-specific characteristics that are expected to affect the size of the credit spread. These characteristics include: the size of a given loan, loan maturity, type of interest rate (fixed or floating), use of collateral, guarantees, contingent provisions, covenants and inability to accurately identify arm's length liabilities of firm outsiders (Cavalluzzo et al. 2002; Cassar 2011). Insolvency forecasts and credit ratings are likely to suffer from much lower measurement error.

opinion is accurate, i.e., sort of a "partner-who-cried-wolf" effect. In contrast, for Type 2 errors, we observe that clients of partners who have a record of "false negative" signals—failing to issue a GCO when appropriate—are viewed as less creditworthy across all three credit measures. When *PRIOR_FAIL2* is interacted with the actual issuance of a GCO, *RISK* is set even higher (14.108, $p<.05$) since the signal value of a GCO under such circumstances is very strong. This is consistent with a view that the market takes it more seriously and places a greater weight on the going concern opinion if the auditor has a history of being "lenient" in his/her previous audits.

After controlling for known risk factors, all three models indicate that prior Type 2 reporting errors negatively affect perceptions of a client's creditworthiness. Economically, one standard deviation shift in the prior Type 2 error rate increases the forecast of insolvency (*RISK*) by approximately 1.02 percent. Further, the effect of prior error frequencies on *DEBTRATE* is incremental to the effect of *RISK* which is included as an explanatory variable in that model. Overall, the empirical evidence in Table 7 strongly supports Hypothesis 2, but for prior Type 2 errors only.[35]

<<<<< Insert Table 7 about here >>>>>

Table 8 presents the results based on prior accounting decisions using past signed abnormal accruals as proxies for whether a partner is generally conservative or aggressive. The results for the control variables are almost identical to the ones reported in Table 7. Again, the

[35] Analysis of subsamples may be more informative than interaction terms, i.e., if the coefficients of the control variables differ between the subsamples (Hardy 1993). To address this issue, we estimated the models reported in Columns (2) of Tables 7 and 8 in a number of subsamples: (i) for auditors with prior Type 1 errors, (ii) for auditors with no prior Type 1 errors, (iii) for auditors with prior Type 2 errors, and (iv) for auditors with no prior Type 2 errors. In all cases, we find that credit raters place significantly less (more) weight on new going concern opinions in assessing the firm-specific insolvency risk if the auditor has (not) had prior Type 1 reporting errors. Moreover, this analysis reveals that credit raters place greater weight on new going concern opinions if the auditor has a history of prior Type 2 reporting errors. These additional tests provide further support for our primary findings.

firm-wide effects are not significant. When a partner has a history of being associated with aggressive accrual estimates (*PRIOR_POSDACC*) we see that all of the credit measures indicate that current clients are perceived to have higher levels of credit risk. This effect is accentuated for *RISK* when a current GCO is interacted with prior aggressive accruals (21.524, p<.05). That is, clients of partners who have a record of associating with aggressive accounting accrual estimates are viewed as less creditworthy because the signal value of a GCO under such circumstances is very strong. When we look at conservative reporting as captured by *PRIOR_NEGDACC*, we see no effect at all on our credit metrics. Moreover, the interaction term in the *RISK* model indicates that *PRIOR_NEGDACC* is marginally associated with lower risk of insolvency when a GCO is issued by the partner (-14.186, p<.10). This finding suggests that the market discounts the auditor's report because the partner has a record of conservative judgments regarding accruals. Overall, the empirical evidence in Tables 7 and 8 supports Hypothesis 2, but primarily for prior aggressive auditor reporting.

<<<<< Insert Table 8 about here >>>>>

5. Supplemental Analysis

5.1. Empirical tests performed for publicly listed companies

In this section, we separately analyze of the effect of audit partner quality for the subsample of publicly-listed firms.[36] For publicly listed firms, financial statement data is obtained from Thomson Reuters. There are only 10 qualified audit reports among publicly listed companies preventing estimation of Equation (1). Consequently, we only replicate the tests of persistency in accruals and cash flows for public companies. However, we also add a

[36] Given the relatively small number of publicly listed firms in our sample, we extend our testing period to 2010. For 2010, we use auditor error frequencies from 2008 because we do not have access to clientele data for 2009.

test of abnormal accruals to further explore whether financial reporting quality is conditional on auditor quality. We also include a test of Tobins Q to examine potential economic consequences of auditor quality. As before, prior reporting errors for individual partners are calculated from their entire clientele, not just from public companies.

Descriptive statistics for the public firms are presented in Table 9. Prior reporting error frequencies for the public subsample are very close to those reported in Table 2. The mean (median) value of abnormal accruals is -0.001 (-0.004) and ranges from -0.258 to 0.364. The logarithmic Tobin's Q ranges from -1.268 to 4.330, with a mean (median) of 0.389 (0.336). Table 10 shows the pairwise correlations for the sample of publicly-listed companies. As seen in Panel B of Table 10, *PRIOR*_FAIL1 (*PRIOR_FAIL2*) is negatively (positively) associated with signed discretionary accruals. In Panel C, we observe that *PRIOR_FAIL2* is negatively correlated with the natural log of Tobin's Q which is consistent with our second hypothesis. Other correlations are mainly consistent with prior studies and expectations, or insignificant.

<<<<< Insert Tables 9 and 10 about here >>>>>

Table 11 presents the results for the persistence of accruals and operating cash flows. *PRIOR_FAIL1* itself is associated with higher predictability (0.5248, $p<.01$) but *PRIOR_FAIL2* is not significant (-0.0164). However, our primary interest in this analysis relies on the coefficients of the interaction terms between prior reporting error frequencies and accounting accruals. We observe that predictability based on accruals is lower when there are prior Type 2 errors (-0.9387, $p<.05$) but not when there are prior Type 1 errors (-0.1190, not significant). This evidence is consistent with prior reporting errors increasing the noise in accrual estimates (i.e., accruals are less persistent) resulting in less accurate forecasts of operating cash flows and, indirectly, estimates of firm value. We also find that the persistency of *OCF* is lower for

both Type 1 errors (-0.6278, p<.05) and Type 2 errors (-0.7367, p<.05) suggesting declining financial performance among client firms of auditors with a history of reporting errors.[37]

<<<<< Insert Table 11 about here >>>>>

Tables 12 and 13 present the results for abnormal accruals. In order to estimate the abnormal part of the accruals we use the modified Jones (1991) model, as extended by Ball and Shivakumar (2006). We estimate the model separately for each industry having at least 15 observations.[38] In the second stage, we regress the signed residual (i.e., the discretionary or abnormal part of total accruals) on our test variables and control variables (Chen et al. 2008; Choi et al 2010; Reichelt and Wang 2010). We include a random firm-specific intercept which significantly improves the model fit (all p-values of the LR-tests are below 0.01).

Clients of auditors with a high frequency of past Type 1 errors (*PRIOR_FAIL1*, Table 12) and auditors with prior conservative accrual judgments (*PRIOR_NEGDACC*, Table 13) have lower total accruals, income increasing accruals and income-decreasing abnormal accruals, while the reverse is true for clients of auditors with a high frequency of past Type 2 errors (*PRIOR_FAIL2*, Table 12) and auditors previously associated with aggressive accrual estimates (*PRIOR_POSDACC*, Table 13). As was the case with GCO tests reported in Tables 4 and 5, some partners seem to be systematically more aggressive or conservative in their

[37] Using prior median absolute abnormal accruals as proxies for past conservative (*PRIOR_NEGDACC*) or aggressive (*PRIOR_POSDACC*) reporting behavior, the estimated results are qualitatively similar to the ones reported in Table 11 (not tabulated). In other words, we find that the accounting accruals are less persistent ($ACCR_t \times PRIOR\_POSDACC_t$) when auditor has previously been associated with aggressive accrual estimates.

[38] Specifically, the following model is estimated separately for each industry sector:

$$ACC_{j,t} = \alpha_0 + \alpha_1 \Delta SALES_{j,t} + \alpha_2 PPE_{j,t} + \alpha_3 OCF_{j,t} + \alpha_4 DLOSS_{j,t} + \alpha_5 OCF_{j,t} \times DLOSS_{j,t} + \varepsilon_{j,t}$$

where total accruals (*ACC*) equal earnings before extraordinary items less operating cash flow; *ΔSALES* is the change in sales between years *t* and *t-1* minus the change in accounts receivable from year *t-1* to *t*; *PPE* is gross property, plant, and equipment; *OCF* is cash flow from operations; *DLOSS* is a dummy variable equal to one if cash flow from operations (*OCF*) is negative; and ε is the error term. All variables are standardized by lagged total assets. Discretionary accruals (*DA*) is the residual from the model. Subscripts *j* and *t* denote firm and year, respectively. The average R-square of this model is 53.6 percent.

conclusions about client accruals, i.e., in our primary analysis, we observed that partners with a high incidence of Type 1 errors and partners with prior conservative accrual judgments were generally more conservative, which is consistent with the results for public companies. Similarly, our main analyses revealed that partners with a high incidence of Type 2 errors and partners with prior aggressive accrual judgments were more aggressive, which is again consistent with the results for public companies.

<<<<< Insert Tables 12 and 13 about here >>>>>

We now examine the economic consequences of partner reporting failures for publicly listed clients. Following prior literature (Morck et al. 1988; Claessens et al. 2002; Cronqvist and Nilsson 2003; Doidge et al. 2009; Gompers et al. 2010; Zerni et al. 2010), we measure the potential economic consequences of low auditor quality using Tobin's Q (the ratio of the market value to replacement cost of total assets). The replacement cost of total assets and the market value of total debt are approximated using their book values.[39] We include several firm-specific control variables: company size (*SIZE*), leverage (*DTA*), accounting profitability (*ROA*), the ratio of capital expenditures to total assets (*CAPEX*) and existence of any reported special items (*SPECIAL*). We control for audit tenure, office size and audit partner career length. We also include a random firm-specific intercept to control for unobservable company-specific factors.[40] Finally, we also run an analysis that includes firm fixed effects to control for time invariant omitted factors affecting Q. The results of these analyses are presented in Table

[39] Public companies have much lower leverage than privately held firms so Tobin's Q is arguably a more suitable proxy for our analysis compared to the credit risk measures that we use for the private companies sample. The chosen log-linear form of Q has two advantages over plain Q: First, as noted by Adams et al (2009), Q can never be negative, while logarithmic Q can. Using Q instead of logarithmic Q as the dependent variable might produce fitted values that are outside of the natural range of Q. Second, the log transformation of Q reduces the influence of outliers on the results (Gompers et al. 2010). Our empirical results are not sensitive to the log transformation of Q.

[40] Both p-values of the LR-tests are below 0.001 very strongly supporting the use of random effects model to control for unobserved cross-sectional firm heterogeneity

14. Coefficients for the control variables are consistent with prior research, or insignificant. Firm-wide effects are not significant. Prior Type 1 errors are not associated with Q but prior Type 2 errors are negative and significant (-0.3685, p<.01; -0.3808, p<.01). The coefficient for *PRIOR_FAIL2* in Column (2) indicates that the level of Tobin's Q decreases by 10.9 percent per one standard deviation increase in the prior Type 2 error rate.[41]

<<<<< Insert Table 14 about here >>>>>

5.2. Other additional analyses

We conduct a number of supplemental analyses to rule out alternative explanations for our results. First, we apply the abnormal accruals model to the private companies in our sample. The results (not tabulated) are similar and show a significant negative association between prior Type 1 errors and both income-increasing and income-decreasing abnormal accruals, and a significant positive association between prior Type 2 errors and both income-increasing and income-decreasing abnormal accruals. These results are consistent with our main findings.

Second, while our models include a wide variety of client-specific measures that could affect the risk of insolvency, as well as a random firm-specific intercept to address client-specific unobservable factors, it is not possible to control for all factors that might affect an auditor's GCO decision (e.g., unobservable debt covenants). In spite of the previously-noted limitations, we address the issue of endogeneity related to auditor self-selection by using a model with firm fixed effects which capture unobservable time invariant firm-specific

[41] Using prior median absolute abnormal accruals as proxies for past conservative (*PRIOR_NEGDACC*) or aggressive (*PRIOR_POSDACC*) reporting behavior, the results are qualitatively similar to the ones reported in Table 14 (not tabulated), i.e., *PRIOR_POSDACC* is associated with lower Q, while *PRIOR_NEGDACC* is not significantly associated with Q.

characteristics. Due to the binary nature of some of our dependent variables; it is not possible to re-estimate all of the models using firm fixed effects. Further, we exclude firms with only one usable observation, leaving 17,778 firm-year observations. Results of this analysis are reported in Table 15 using our original variables *PRIOR_FAIL1* and *PRIOR_FAIL2* to proxy for auditor conservative or aggressive reporting. All results are consistent with our primary analysis for prior reporting errors. Consistent with the results in Table 6, Type 1 reporting errors do not affect credit rater perceptions of insolvency risk, while prior Type 2 reporting errors increase the perception of credit risk.[42]

<<<<< Insert Table 15 about here >>>>>

Finally, we extend our empirical models reported in Tables 4-8 by adding office-level dummies to the various models. The purpose of this analysis is to confirm that our findings are incremental to the office-level findings in Francis and Michas (2013). In these untabulated re-estimations, we find that our main empirical findings are qualitatively similar to those reported.

6. Conclusion

The value of an external audit depends on whether users of financial statements perceive auditors as skilled and independent professionals. The purpose of this study is to enhance our understanding of audit quality at the level of the individual auditor by examining whether a partner's prior audit reporting failure(s) indicates systematic variations in aggressive or conservative reporting. In this case, auditor identity may convey information to users of the audited financial statements about how an audit partner will perform in the future. Further, we examine whether the market reacts to variations in reporting style in terms of firm-specific

[42] We also test our accrual-based proxies for auditor conservatism (*PRIOR_NEGDACC*) or aggressiveness (*PRIOR_POSDACC*) using a similar firm-fixed effects models. The results (not tabulated) are fully consistent with the results reported in column (2) of Table 7.

credit ratings, the issued risk forecasts of insolvency by credit raters or the implicit cost of debt capital for private client companies, or Tobin's Q for publicly listed companies.

Based on panel data of the total client portfolios of individual Big 4 auditors in Sweden, our main findings can be summarized as follows: First, we find that both audit reporting aggressiveness and conservatism (measured by the frequency of prior Type 2 and Type 1 audit errors, respectively) persist over time and extend to future audits of other clients of the same auditor. Analyses of the earnings properties of client firms of these partners corroborate this finding, and hold both for private and publicly listed client companies. Specifically, accruals are less persistent and accrual-based net income is, hence, less informative of future cash flows for clients of auditors with a history of misreporting. Further, there is a significant negative association between prior Type 1 errors and both income-increasing and income-decreasing abnormal accruals, and a significant positive association between prior Type 2 errors and both income-increasing and income-decreasing abnormal accruals. Overall, these results suggest that auditor aggressive or conservative reporting is a systematic audit partner attribute and not randomly distributed across engagements. An extensive number of robustness tests are consistent with this conclusion. Second, we find that the market recognizes and prices differences in audit reporting style among engagement partners. Specifically, we find that the credit market attributes higher implicit interest rates, worse credit ratings, and a higher likelihood of insolvency to clients of individual auditors with a history of prior Type 2 reporting errors. Similarly, we find a lower Tobin's Q for publicly listed companies that are clients of engagement partners with a history of Type 2 errors, implying that the market penalizes the valuation of these companies. These results are all confirmed when we use an

auditor's prior accounting judgments to proxy for conservatism and aggressiveness as reflected in the prior abnormal accrual levels of a partner's client base over time.

Our study is subject to several limitations. First, it is possible that our findings capture some unobservable differences in the innate firm characteristics in spite of our numerous controls and use of mixed models and firm-fixed effect model extensions. Similarly, while we subdivide our non-bankrupt sample in subsamples based on company risk profiles, there are still default risk variations within each subsample. We acknowledge that we are not able to fully control for potential endogeneity bias since traditional methods such as 2SLS and fixed effects are not appropriate in our setting. Second, because the mandatory disclosure of the engagement partner identity has existed for a long time in Sweden, we are not able to test whether mandating the disclosure of the identity of the engagement partner affects auditor behavior (see Carcello and Li 2013).

Third, while we document the persistence of audit reporting failures and suggest that the disclosure of the identity of the engagement partner would provide incremental information about audit quality, we do not study the underlying mechanisms and consequences for the engagement partner of these repeated failures, i.e., whether they are due to competence and independence issues. Rather, we categorize auditor decisions as aggressive or conservative. We are not able to address the question as to why a client might select and retain an auditor that exhibits those characteristics. Fourth, our study is limited to engagement partners of Big 4 audit firms only. One could argue that the results in a sample of non-Big 4 audit firms would be even stronger since clients of non-Big 4 audit firms are more likely to be distressed and therefore more deserving a GCO. Future research may want to investigate this. Relatedly, our bankruptcy

subsample is relatively small, partly because we use bankruptcy filing as an indicator of business failure which may be overly restrictive (Carson et al. 2012).

In spite of these limitations, we feel that the results presented in this paper provide significant new insight into the role of individual audit partners in influencing audit reporting decisions. Collectively, the findings of this paper emphasize the importance of analyzing audit quality at the level of the individual auditor and contribute to the limited but growing evidence that the characteristics of individual auditors affect audit outcomes. Furthermore, this study provides insights into the economic consequences of partner transparency. Because the auditor's reputation is a potentially critical aspect of audit quality, the reported findings should be of interest to practitioners, regulators, academics and users of financial statements. Specifically, our results imply that the identity of the engagement partner matters to the market. Future studies could focus on whether and how audit firms, markets or regulators might respond to repeated audit failures by an individual auditor.

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Table 1. Sample selection criteria

Panel A: Sample selection criteria for privately held firms	Total
Firm-year observations with engagement partner identified in insider files	113,426
Minus observations of non-Big 4 auditor clients, clients of auditors without data for four consecutive years, or clients employing joint audits	69,724
Minus observations needed to "calibrate" auditor reporting error frequencies	46,828
Minus public firms, observations from firms belonging to finance and insurance industries, observations with negative total assets or negative total liabilities.	40,140
Minus observations excluded due to subsample restrictions or due to missing values for variables needed in the empirical model	922 to 22,971
Panel B: Sample selection criteria for publicly listed firms	**Total**
Firm-year observations with engagement partner identified in insider files	3,663
Minus observations of non-Big 4 auditor clients, clients of auditors without data for four consecutive years, or clients employing joint audits	2,401
Minus observations from firms belonging to finance and insurance industries,	2,360
Minus observations needed to "calibrate" auditor reporting error frequencies	1,699
Minus missing other data for the empirical models	1,075 to 1,595

Table 2 Descriptive statistics among privately held sample companies

Variable	Mean	Std.	Min	25%tile	Median	75%tile	Max	N
PRIOR_FAIL2[a]	0.669	0.334	0	0.524	0.743	0.817	1	922
FAIL2[a]	0.768	0.422	0	1	1	1	1	922
PRIOR_FAIL1 [b]	0.041	0.047	0	0	0.032	0.059	0.333	22,971
FAIL1[b]	0.042	0.198	0	0	0	0	1	22,971
PRIOR_FAIL2_FIRM	0.027	0.004	0.019	0.022	0.026	0.030	0.039	22.971
PRIOR_FAIL1_FIRM	0.041	0.007	0.027	0.032	0.040	0.049	0.056	22.971
EQ_HALF [b]	0.031	0.173	0	0	0	0	1	22,971
LIQUI [b]	0.794	1.892	0	0.032	0.160	0.721	12.210	22,971
INVREC [b]	0.288	0.301	0	0.081	0.270	0.573	1	22,971
CAREER [b]	18.76	7.74	1	13	19	25	38	22,971
OFFSIZE [b]	2.693	1.689	0	1.386	2.639	4.248	5.384	22,971
NBR_CLIENTS [b]	53.47	51.86	2	17	37	89	372	22,971
TENURE [b]	5.86	4.66	1	2	5	9	18	22,971
SIZE [b]	16.04	2.21	10.43	14.38	15.68	17.34	26.10	22,971
RISK [b]	1.886	5.343	0.010	0.160	0.480	1.490	99.000	22,971
DTA [b]	0.667	0.276	0	0.486	0.710	0.880	1.97	22,971
BOARD_TENURE [b]	7.36	5.35	1	3	7	11	26.000	22,971
UNPAID_DEBTS [b]	0.037	0.562	0	0	0.00002	0.003	24.478	22,971
REPLAG [b]	5.196	0.337	3.258	5.069	5.263	5.371	6.931	22,971
LOGAGE [b]	2.632	0.838	0	1.985	2.690	3.095	4.710	22,971
CONTROL [b]	0.468	0.499	0	0	0	1	1	22,971
DEBTRATE[c]	0.044	0.055	0.010	0.021	0.032	0.047	0.587	12,806
CRATE [d]	3.992	1.083	1	3	4	5	5	18,613
PRIORITY [d]	0.208	0.406	0	0	0	1	1	18,613
ROA [d]	0.032	0.202	-5.128	-0.001	0.034	0.106	2.695	18,613
PPE [d]	0.368	0.330	0.000	0.072	0.268	0.656	1.095	18,613
GCO [d]	0.054	0.226	0	0	0	0	1	18,613
MODIF [d]	0.092	0.289	0	0	0	0	1	18,613

Notes:

[a] Conditional on the observations belonging to the subsample used in Column (4) of Table 4. [b] Conditional on the observation belonging to the subsample used in Column (1) in panel A or Panel B. of Table 4. [c] Conditional on the observations belonging to the subsample used in Column (3) of Table 6.[d] Conditional on the observations belonging to the subsample used in Column (1) of Table 6. PRIOR_FAIL2 is the cumulative frequency of prior Type 2 audit reporting errors for auditor *i* for the period 2001-*t-1*. PRIOR_FAIL1 is calculated by dividing the cumulative number of companies that did not file for bankruptcy within 12 months from the issuance of financial statements *and* for whom the auditor *i* did issue a going concern report by the number of all the auditor client companies that did not file for bankruptcy within 12 months from the issuance of the financial statements for the period 2001-*t-1*. PRIOR_FAIL2 is calculated by dividing the cumulative number of companies that filed for bankruptcy within 12 months from the issuance of financial statements *and* for whom the auditor *i* did not issue a going concern report by the number of all the auditor client companies that filed for bankruptcy within 12 months from the issuance of the financial statements for the period 2001-*t-1*. FAIL2 is an indicator variable if auditor *i* performs a Type 1 audit reporting error for client *j* in fiscal year *t*. PRIOR_FAIL1 is the cumulative frequency of prior Type 1 audit reporting errors for auditor *i* for the period 2001-*t-1*; FAIL1 is an indicator variable if auditor *i* performs a Type 1 audit reporting error for client *j* in fiscal year *t*. PRIOR_FAIL1_FIRM is the past audit firm-level type 1 reporting failure rate; PRIOR_FAIL2_FIRM is the past firm-level type 2 reporting failure rate (in calculating both the PRIOR_FAIL1_FIRM and PRIOR_FAIL2_FIRM, the auditor under observation is omitted); PRIOR_POSDACC is defined as the past median abnormal accruals if the median value is positive, otherwise zero; PRIOR_NEGDACC is defined as the absolute past median abnormal accruals if the median value is negative, otherwise zero In calculating both PRIOR_POSDACC and PRIOR_NEGDACC the auditor under observation is excluded. PRIOR_POSDACC_FIRM is the past audit firm-level PRIOR_POSDACC and PRIOR_NEGDACC_FIRM is the past audit firm-level PRIOR_NEGDACC (in calculating both the PRIOR_POSDACC_FIRM and PRIOR_NEGDACC_FIRM, the auditor under observation is omitted);_EQ_HALF is a dummy variable with a value of one if the amount of equity capital is less than half of the share capital for client *j* in fiscal year *t*; CASH is the ratio of cash and cash equivalents to total assets; INVREC is the ratio of inventories and receivables to total assets; CAREER is the number of years since the auditor *i* certification date; OFFSIZE is the natural logarithm of the number of auditors in the audit office; NBR_CLIENTS# is the number of auditor's all engagements. TENURE is the number of years the auditor *i* has been the auditor-in-charge for client firm *j* in fiscal year *t*. SIZE is the natural logarithm of total assets in Swedish crowns; RISK is the risk forecast issued for the client firm by the credit rating agency; DTA is the ratio of debt to total assets; BOARD_TENURE is the mean tenure of the board in years; UNPAID_DEBTS is the proportion of unpaid debts to total assets; REPLAG is the natural log of number of days between fiscal year end and date when the financial report was filed with the Swedish company register Bolagsverket; LOGAGE is the natural logarithm of the client firm *j* age in years in fiscal year *t*; CONTROL is a dummy variable with a value of one if the firm has a controlling shareholder and is otherwise zero; DEBTRATE is defined as the interest expenses paid to the financial institutions divided by the average amount of debt to financial institutions between the ends of fiscal years *t-1* and *t*. CRATE is the credit rating issued for the client firm by the credit rating agency in which higher values indicate lower credit risk; PRIORITY is an indicator variable for the existence of loan priority over other interested parties in case of bankruptcy; ROA is the return on assets; PPE is the ratio of the property plant and the equipment to total assets; GCO is an indicator variable for the going concern audit opinions; MODIF is an indicator variable for the audit opinions containing an emphasis of matter paragraph.

Table 3: Pearson's correlation coefficients among privately held companies

Panel A: Pearson's correlation coefficients among the variables used in Tables 4 and 5

	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
FAIL1 (1) [a]	Na*	**0.283**	**0.124**	-0.011	0.008	-0.004	**-0.023**	**0.369**	**-0.054**	-0.014	**-0.057**	**-0.174**	**0.200**	**0.595**	**0.132**	**-0.029**	**0.090**	**-0.084**	**-0.122**	**-0.044**	0.017
FAIL2 (2) [b]	**1**	**-0.360**	**-0.179**	**0.118**	-0.002	0.003	**0.281**	**-0.095**	**0.071**	**0.091**	**0.125**	**0.301**	**-0.478**	**-0.672**	**-0.076**	**0.045**	**-0.101**	**0.258**	**0.237**	**0.155**	**-0.050**
RISK (3) [a]		**1**	**0.040**	**0.047**	0.007	0.010	**0.073**	-0.006	**-0.074**	-0.018	**-0.136**	**-0.100**	**0.187**	**0.227**	**0.120**	**-0.123**	**0.196**	**-0.146**	**-0.063**	**-0.112**	**0.061**
PRIOR_FAIL1 (4) [a]			**1**	**-0.059**	0.007	-0.005	**-0.104**	**0.474**	**-0.140**	**-0.186**	**-0.027**	**-0.252**	**-0.025**	**0.106**	**-0.028**	**0.050**	**0.030**	**-0.099**	**-0.187**	**0.090**	0.010
PRIOR_FAIL2 (5) [a]				**1**	-0.003	0.004	**0.328**	**-0.081**	0.012	**0.055**	**-0.026**	**-0.039**	0.002	-0.010	**0.041**	-0.003	-0.002	**-0.022**	**0.028**	**-0.016**	-0.002
PRIOR_FAIL1_FIRM (6) [a]					**1**	-0.007	-0.011	0.011	-0.008	-0.008	0.002	0.009	-0.002	0.003	0.007	-0.008	0.010	0.003	0.006	**0.019**	0.01
PRIOR_FAIL2_FIRM (7) [a]						**1**	0.008	0.002	0.005	-0.002	-0.006	**-0.021**	0.009	0.004	0.010	-0.008	0.011	**-0.019**	0.008	-0.002	**0.02**
PRIOR_POSDACC (8) [a]							**1**	Na*	0.003	-0.006	-0.010	**-0.030**	0.001	0.009	0.020	-0.007	0.008	-0.011	0.001	0.002	**0.029**
PRIOR_NEGDACC (9) [a]								**1**	-0.001	-0.008	-0.001	0.011	-0.006	0.006	0.012	-0.003	0.012	0.001	0.002	**0.030**	0.006
CAREER (10) [a]									**1**	-0.009	**0.322**	**0.122**	**-0.026**	**-0.060**	**-0.019**	**0.112**	**-0.014**	**0.178**	**0.100**	**-0.045**	-0.008
OFFSIZE (11) [a]										**1**	**-0.090**	**0.172**	0.002	**-0.037**	**0.048**	**-0.094**	0.001	**0.026**	**0.154**	-0.011	**-0.058**
TENURE (12) [a]											**1**	**-0.022**	**-0.120**	**-0.068**	**-0.067**	**0.471**	**-0.029**	**0.402**	**-0.080**	**0.065**	-0.004
SIZE (13) [a]												**1**	**0.233**	**-0.174**	**-0.030**	**-0.205**	**-0.031**	**0.301**	**0.397**	**-0.320**	-0.003
DTA (14) [a]													**1**	**0.299**	**0.084**	**-0.209**	**0.037**	**-0.110**	**0.207**	**-0.380**	**0.225**
EQ_HALF (15) [a]														**1**	**0.075**	**-0.047**	**0.068**	**-0.088**	**-0.090**	**-0.049**	**0.030**
REPLAG (16)															**1**	**-0.055**	**0.038**	**-0.047**	**-0.033**	**-0.089**	**-0.020**
BOARD_TENURE (17)																**1**	**-0.033**	**0.410**	**-0.274**	**0.108**	**0.017**
UNPAID_DEBTS (18)																	**1**	**-0.061**	**-0.051**	**-0.066**	**-0.024**
LOGAGE (19) [a]																		**1**	**0.201**	**-0.077**	0.001
CONTROL (20) [a]																			**1**	**-0.233**	-0.002
LIQUI (21) [a]																				**1**	**-0.261**
INVREC (22) [a]																					1
NBR_CLIENTS [a] (23)																					

Panel B: Pearson's correlation coefficients among the variables used in Table 6.

	2	3	4	5	6	7	8	9	10
PRIOR_FAIL2 (1)	**-0.059**	**-0.025**	-0.011	-0.007	**-0.021**	**-0.135**	0.010	**0.341**	**-0.078**
PRIOR_FAIL1 (2)	**1**	-0.002	0.004	0.003	**-0.026**	**-0.215**	**0.018**	**-0.098**	**0.421**
OCF_{t+1} (3)		**1**	**0.309**	**0.202**	**-0.111**	**0.049**	**0.038**	0.010	**-0.029**
OCF_t (4)			**1**	**-0.703**	**-0.070**	**0.112**	**0.165**	0.007	**-0.024**
$ACCR_t$ (5)				**1**	**-0.129**	**-0.037**	**-0.091**	0.010	0.011
DTA (6)					**1**	**0.152**	**0.065**	0.003	-0.004
SIZE (7)						**1**	**0.032**	**-0.028**	0.012
GROWTH (8)							**1**	-0.005	0.002
PRIOR_POSDACC (9)								**1**	Na*
PRIOR_NEGDACC (10)									**1**

Panel C: Pearson's correlation coefficients among the variables used in Tables 7 and 8

	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
RISK (1) [d]	**-0.570**	**0.112**	**0.046**	**0.062**	0.002	0.010	**0.077**	-0.006	**0.301**	**0.192**	**-0.091**	**0.210**	-0.008	**-0.143**	**0.148**	**-0.078**	**-0.132**	**-0.128**	**0.205**	**0.132**	**0.226**	**-0.100**
CRATE (2) [d]	**1**	**-0.039**	**-0.090**	**-0.132**	-0.010	-0.012	**-0.145**	0.009	**-0.299**	**-0.195**	**0.190**	**-0.329**	**0.030**	**0.312**	**-0.160**	**0.069**	**0.199**	**0.268**	**-0.094**	**-0.270**	**-0.222**	**0.194**
DEBTRATE (3) [e]		**1**	**0.029**	**0.049**	0.004	0.013	**0.070**	-0.010	**0.064**	**0.044**	**-0.065**	**-0.090**	**0.051**	**-0.033**	**0.049**	**-0.108**	**-0.048**	**0.039**	**0.025**	**-0.076**	**0.050**	0.003
PRIOR_FAIL1 (4) [d]			**1**	**-0.053**	0.006	-0.004	**-0.096**	**0.402**	**0.088**	**0.068**	**-0.251**	**-0.022**	**-0.048**	**-0.090**	**-0.030**	**-0.211**	**0.038**	**0.052**	**0.031**	**0.051**	**0.054**	0.002
PRIOR_FAIL2 (5) [d]				**1**	-0.006	0.003	**0.320**	**-0.076**	**-0.029**	**-0.022**	**-0.048**	-0.002	**-0.029**	**-0.030**	**0.048**	0.001	-0.007	-0.011	-0.004	-0.010	-0.001	**-0.027**
PRIOR_FAIL1_FIRM (6) [a]					**1**	-0.004	-0.009	0.008	0.003	0.007	0.009	-0.002	0.017	0.003	0.005	0.009	**-0.024**	-0.007	0.008	0.004	0.001	-0.006
PRIOR_FAIL2_FIRM (7) [a]						**1**	0.008	0.004	0.008	0.011	**-0.023**	0.010	0.006	**-0.023**	0.007	0.003	0.013	-0.005	0.014	0.001	-0.005	0.008
PRIOR_POSDACC (8) [a]							**1**	Na*	-0.010	-0.012	**-0.023**	0.010	0.002	-0.009	**0.022**	0.004	**0.040**	-0.011	0.005	0.006	-0.008	0.005
PRIOR_NEGDACC (9) [a]								**1**	**0.078**	**0.054**	**-0.031**	0.003	-0.004	0.004	0.008	0.002	-0.011	-0.001	0.010	0.007	0.001	0.003
GCO (10) [d]									**1**	**-0.066**	**-0.149**	**0.249**	-0.010	**-0.061**	**0.088**	**-0.133**	**-0.186**	**-0.031**	**-0.033**	**0.055**	**0.644**	**-0.048**
MODIF (11) [d]										**1**	**-0.149**	**0.080**	0.010	**-0.048**	**0.156**	**0.101**	**-0.088**	**-0.017**	**-0.019**	**0.047**	**0.067**	**-0.071**
SIZE (12) [d]											**1**	**0.178**	**0.264**	**0.288**	**-0.038**	**0.438**	**0.050**	**-0.211**	**-0.034**	**0.051**	**-0.165**	-0.005
DTA (13) [d]												**1**	**0.145**	**-0.110**	**0.093**	**0.211**	**-0.197**	**-0.200**	**0.040**	**0.209**	**0.300**	**-0.136**
PPE (14) [d]													**1**	**0.032**	**0.024**	**0.062**	**-0.150**	**-0.056**	**0.022**	**-0.091**	0.010	-0.002
LOGAGE (15) [d]														**1**	**-0.057**	**0.190**	**0.027**	**-0.399**	**-0.062**	**-0.137**	**-0.071**	**0.404**
REPLAG (16)															**1**	**-0.034**	**-0.689**	**-0.060**	**0.035**	**0.073**	**-0.069**	**-0.021**
CONTROL (17) [d]																**1**	0.004	**-0.258**	**-0.052**	**0.031**	**-0.087**	**-0.059**
ROA (18) [d]																	**1**	**0.044**	**-0.028**	**-0.039**	**-0.234**	0.014
BOARD_TENURE(19) [d]																		**1**	**-0.037**	**-0.050**	**0.459**	**0.136**
UNPAID_DEBTS(20) [d]																			**1**	**0.066**	**-0.031**	**-0.015**
EQ_HALF (21) [d]																				**1**	**-0.070**	**-0.058**
TENURE (22) [d]																					**1**	**0.316**
CAREER (23) [d]																						**1**
OFFSIZE (24) [d]																						

Notes:
*Not available. [a] Conditional on the observations used in Columns (1) of Tables 4 and 5 (N = 22,971). [b] Conditional on the observations used in Columns (4) of Table 4 and 5 (N = 922). [c] Conditional on the observations used in Table 6. [d] Conditional on the observations used in Columns (1), (2) and (4) of Tables 7 and 8 (N = 18,613). [e] Conditional on the observations used in Columns (3) of Tables 7 and 8 (N = 12,806). **Bolded figures** are significant at the 5 percent level (two-tailed). All variables are defined as in Table 2.

Table 4 Logistic regression results of the Type 1 and Type 2 reporting errors of auditors among different samples of privately held client firms.

Dependent variable	FAIL1 All non-bankrupt companies		FAIL1 Non-bankrupt low-risk companies		FAIL1 Non-bankrupt high-risk companies		FAIL2 Bankrupt companies	
	(1) Coef.	χ^2	(2) Coef.	χ^2	(3) Coef.	χ^2	(4) Coef.	χ^2
PRIOR_FAIL1	5.156 ***	32.28	2.623 **	5.98	7.320 ***	27.80	-6.693 ***	7.22
PRIOR_FAIL2	-0.096	1.32	-13.714 ***	9.83	-0.902	2.14	3.886 **	5.10
PRIOR_FAIL1_FIRM	2.713	1.16	2.517	0.98	2.960	1.60	-4.893	2.40
PRIOR_FAIL2_FIRM	-1.648	0.28	-1.551	0.21	-1.892	0.42	1.150	0.18
CAREER	0.003	0.79	0.004	0.64	0.004	0.62	-0.027	1.20
OFFSIZE	0.104 ***	11.08	0.065	0.11	0.112 ***	13.37	0.070	0.35
NBR_CLIENTS	-0.081	2.01	-0.010	0.16	0.120	1.40	-0.250	2.14
TENURE	-0.034 **	5.10	-0.026	0.88	-0.046 **	4.24	-0.135 ***	6.82
SIZE	-0.491 ***	138.98	-0.430 ***	41.77	-0.467 ***	84.18	0.302 **	6.48
RISK	0.060 ***	45.20	0.796 ***	75.68	0.031 ***	15.90	0.020	2.42
DTA	1.301 ***	23.88	0.144	0.75	1.382 ***	22.55	-0.098	0.02
EQ_HALF	3.603 ***	468.67	-		2.632 ***	202.98	-5.500 ***	52.18
BOARD_TENURE	-0.012	1.08	-0.006	0.16	0.055 ***	8.22	0.055	2.36
UNPAID_DEBTS	0.148 ***	9.70	-0.790	1.26	0.125 **	5.28	-0.204 *	3.68
REPLAG	2.296 ***	241.36	2.384 ***	166.91	2.110	56.90	-1.498 ***	8.82
LOGAGE	0.006	1.39	0.290 ***	6.98	-0.135	2.02	0.001	0.01
CONTROL	-0.579 ***	21.50	-0.678 ***	10.63	-0.443 ***	7.10	-1.288 ***	9.82
LIQUI	-0.735 ***	27.15	-1.105 ***	16.30	-0.032	0.72	0.988 *	3.60
INVREC	0.088	0.20	-0.012	0.14	0.120	0.56	-0.008	0.01
Intercept	-9.984 ***	75.04	2.202	0.28	-9.539 ***	36.66	10.780 ***	14.16
Annual fixed effects?	Yes		Yes		Yes		Yes	
Economic sector fixed effects?	Yes		Yes		Yes		Yes	
LR-ratio (χ^2)	4,304.29 ***		717.3 ***		1,602.6 ***		567.8 ***	
Nagelkerke R^2	55.7 %		26.2 %		62.5 %		72.1 %	
Correctly classified	93.8 %		86.0 %		92.8 %		96.0 %	
N (# Events)	22,971 (1,050)		20,127 (272)		2,844 (778)		922 (736)	

Notes:

FAIL1 is an indicator variable if auditor *i* performs a Type 1 audit reporting error for client *j* in fiscal year *t*. FAIL2 is an indicator variable if auditor *i* performs a Type 1 audit reporting error for client *j* in fiscal year *t*. PRIOR_FAIL1 is the cumulative frequency of prior Type 1 audit reporting errors for auditor *i* for the period 2001-*t-1*; PRIOR_FAIL1 is calculated by dividing the cumulative number of companies that did not file for bankruptcy within 12 months from the issuance of financial statements *and* for whom the auditor *i* did issue a going concern report by the number of all the auditor client companies that did not file for bankruptcy within 12 months from the issuance of the financial statements for the period 2001-*t-1*.PRIOR_FAIL2 is the cumulative frequency of prior Type 2 audit reporting errors for auditor *i* for the period 2001-*t-1*. PRIOR_FAIL2 is calculated by dividing the cumulative number of companies that filed for bankruptcy within 12 months of the issuance of the financial statements *and* for whom the auditor *i* did not issue a going concern report by the number of all the auditor client companies that filed for bankruptcy within 12 months from the issuance of the financial statements for the period 2001-*t-1*. In calculating both the PRIOR_FAIL1 and PRIOR_FAIL2 the auditor under observation is excluded. PRIOR_FAIL1_FIRM is the past audit firm-level type 1 reporting failure rate; PRIOR_FAIL2_FIRM is the past audit firm-level type 2 reporting failure rate (in calculating the both the PRIOR_FAIL1_FIRM and PRIOR_FAIL2_FIRM, the auditor under observation is omitted); CAREER is the number of years since the auditor *i* certification date; OFFSIZE is the natural logarithm of the number of auditors in the audit office; NBR_CLIENTS is the natural logarithm of the number of auditor's all engagements; TENURE is the number of years the auditor *i* has been the auditor-in-charge for client firm *j* in fiscal year *t*. SIZE is the natural logarithm of the total assets in Swedish crowns; RISK is the risk forecast issued for the client firm by the credit rating agency; DTA is the ratio of the debt to total assets; EQ_HALF is a dummy variable with a value of one if

the amount of equity capital is less than half of the share capital for client *j* in fiscal year *t*; BOARD_TENURE is the mean tenure of the board in years; UNPAID_DEBTS is the proportion of unpaid debts to total assets; REPLAG is the natural log of number of days between fiscal year end and date when the financial report was filed with the Swedish company register Bolagsverket; LOGAGE is the natural logarithm of client firm *j* age in years in fiscal year *t*; CONTROL is a dummy variable with a value of one if the firm has a controlling shareholder and is otherwise zero; LIQUI is the ratio of cash and cash equivalents to the total liabilitiess; INVREC is the ratio of the inventories and receivables to the total assets. In Columns (1)-(3), the statistical significance is calculated by adjusting the standard errors for two-way clustering: i.e., within client firms (repeated measurement) and individual auditors (Petersen 2009). In Column (4), statistical significance is calculated by adjusting the standard errors for clustering within auditors (Rogers 1993; Petersen 2009). Asterisks ***, **, and *, denote two-tailed statistical significance at the 1 percent, 5 percent, and 10 percent levels, respectively.

Table 5 Logistic regression results of the Type 1 and Type 2 reporting errors of auditors among different samples of privately held client firms.

Dependent variable	FAIL1 All non-bankrupt companies		FAIL1 Non-bankrupt low-risk companies		FAIL1 Non-bankrupt high-risk companies		FAIL2 Bankrupt companies	
	(1) Coef.	χ^2	(2) Coef.	χ^2	(3) Coef.	χ^2	(4) Coef.	χ^2
PRIOR_POSDACC	-0.169	1.23	-14.886 ***	13.14	-1.398	2.10	9.124 ***	6.80
PRIOR_NEGDACC	12.790 ***	39.18	7.320 ***	11.14	15.150 ***	42.22	-10.004 ***	8.86
PRIOR_POSDACC_FIRM	0.092	0.40	0.044	0.16	0.160	0.94	-0.109	0.48
PRIOR_NEGDACC_FIRM	0.082	0.18	0.027	0.06	0.099	0.23	-0.204	0.30
CAREER	0.004	0.86	0.003	0.29	0.004	0.60	-0.023	1.02
OFFSIZE	0.106 ***	11.16	0.074	0.45	0.104 ***	13.18	0.006	0.01
NBR_CLIENTS	-0.080	2.00	-0.017	0.28	0.112	1.35	-0.258	2.22
TENURE	-0.034 **	5.14	-0.025	0.72	-0.047 **	4.30	-0.137 ***	6.90
SIZE	-0.490 ***	138.70	-0.440 ***	42.44	-0.467 ***	84.44	0.299 **	6.33
RISK	0.062 ***	46.93	0.800 ***	75.92	0.032 ***	16.48	0.020	2.46
DTA	1.294 ***	23.05	0.120	0.63	1.380 ***	22.46	-0.101	0.08
EQ_HALF	3.618 ***	470.44	-		2.660 ***	207.35	-5.544 ***	53.04
BOARD_TENURE	-0.013	1.12	-0.010	0.30	0.055 ***	8.31	0.056	2.40
UNPAID_DEBTS	0.149 ***	9.79	-0.818	1.65	0.126 **	5.31	-0.208 *	3.77
REPLAG	2.310 ***	242.08	2.404 ***	168.02	2.120	58.10	-1.506 ***	9.03
LOGAGE	0.004	0.84	0.293 ***	7.41	-0.140	2.38	0.007	0.04
CONTROL	-0.588 ***	21.80	-0.674 ***	10.35	-0.444 ***	7.10	-1.279 ***	9.61
LIQUI	-0.735 ***	27.21	-1.088 ***	15.84	-0.050	0.88	1.014 *	3.73
INVREC	0.062	0.15	0.009	0.08	0.020	0.01	0.012	0.06
Intercept	-9.815 ***	75.04	2.140	0.20	-9.682 ***	39.85	10.832 ***	15.08
Annual fixed effects?	Yes		Yes		Yes		Yes	
Economic sector fixed effects?	Yes		Yes		Yes		Yes	
LR-ratio (χ^2)	4,320.04 ***		724.2 ***		1,614.0 ***		574.7 ***	
Nagelkerke R^2	56.0 %		26.3 %		62.8 %		72.3 %	
Correctly classified	94.1 %		86.5 %		93.3 %		96.4 %	
N (# Events)	22,971 (1,050)		20,127 (272)		2,844 (778)		922 (736)	

Notes:

FAIL1 is an indicator variable if auditor *i* performs a Type 1 audit reporting error for client *j* in fiscal year *t*. FAIL2 is an indicator variable if auditor *i* performs a Type 1 audit reporting error for client *j* in fiscal year *t*. PRIOR_POSDACC is defined as the past median abnormal accruals if the median value is positive, otherwise zero; PRIOR_NEGDACC is defined as the absolute past median abnormal accruals if the median value is negative, otherwise zero In calculating both PRIOR_POSDACC and PRIOR_NEGDACC the auditor under observation is excluded. PRIOR_POSDACC_FIRM is the past audit firm-level PRIOR_POSDACC and PRIOR_NEGDACC_FIRM is the past audit firm-level PRIOR_NEGDACC (in calculating both the PRIOR_POSDACC_FIRM and PRIOR_NEGDACC_FIRM, the auditor under observation is omitted)_CAREER is the number of years since the auditor *i* certification date; OFFSIZE is the natural logarithm of the number of auditors in the audit office; NBR_CLIENTS is the natural logarithm of the number of auditor's all engagements; TENURE is the number of years the auditor *i* has been the auditor-in-charge for client firm *j* in fiscal year *t*. SIZE is the natural logarithm of the total assets in Swedish crowns; RISK is the risk forecast issued for the client firm by the credit rating agency; DTA is the ratio of the debt to total assets; EQ_HALF is a dummy variable with a value of one if the amount of equity capital is less than half of the share capital for client *j* in fiscal year *t*; BOARD_TENURE is the mean tenure of the board in years; UNPAID_DEBTS is the proportion of unpaid debts to total assets; REPLAG is the natural log of number of days between fiscal year end and date when the financial report was filed with the Swedish company register Bolagsverket; LOGAGE is the natural logarithm of client firm *j* age in years in fiscal year *t*; CONTROL is a dummy variable with a value of one if the firm has a controlling shareholder and is otherwise zero; LIQUI is the ratio of cash and cash equivalents to the total liabilities; INVREC is the ratio of the inventories and receivables to the total assets. In Columns (1)-(3), the statistical significance is calculated by adjusting the standard errors for two-way clustering: i.e., within client firms (repeated measurement) and individual auditors (Petersen 2009). In Column (4), statistical significance is calculated by adjusting the standard errors for clustering within auditors (Rogers 1993; Petersen 2009). Asterisks ***, **, and *, denote two-tailed statistical significance at the 1 percent, 5 percent, and 10 percent levels, respectively.

Table 6 Regression results for earnings properties

Panel A: Tests of persistency in accruals and cash flows among private firms (N = 19,470)

Dependent Variable		OCF_{t+1} (1)		OCF_{t+1} (2)	
	Pred.	Coef.	t-value	Coef.	t-value
Intercept		-0.0145	-3.82	-0.0051	-0.48
$ACCR_t$	+	0.5057 ***	7.91	0.5768 ***	17.88
OCF_t	+	0.5884 ***	5.49	0.6692 ***	23.74
$PRIOR\_FAIL1_t$	?			0.0048	0.21
$PRIOR\_FAIL2_t$	?			-0.0618 ***	-2.85
$ACCR_t \times PRIOR\_FAIL1_t$	−			-1.0011 **	-2.41
$ACCR_t \times PRIOR\_FAIL2_t$	−			-0.5355 **	-1.99
$OCF_t \times PRIOR\_FAIL1_t$	?			-0.8952 **	-2.47
$OCF_t \times PRIOR\_FAIL2_t$	?			-0.6415 ***	-3.29
$SIZE_t$	+	0.0011 **	2.49	0.0008 *	1.75
DTA_t	?	0.0117 ***	2.46	0.0110 **	2.29
$GROWTH_t$	−	-0.0420 ***	-3.40	-0.0402 ***	-8.16
Annual fixed effects?		Yes		Yes	
Economic sector fixed effects?		Yes		Yes	
Likelihood ratio, $\chi 2$		2,782.1		2,826.6	

Panel B: Tests of persistency in accruals and cash flows among private firms (N = 19,470)

Dependent Variable	OCF_{t+1} (2)	
	Coef.	t-value
Intercept	-0.0062	-0.60
$ACCR_t$	0.5452 ***	15.08
OCF_t	0.6325 ***	19.17
$PRIOR\_POSDACC_t$	0.0060	0.48
$PRIOR\_NEGDACC_t$	-0.0355 *	-1.82
$ACCR_t \times PRIOR\_POSDACC_t$	-2.744 ***	-2.98
$ACCR_t \times PRIOR\_NEGDACC_t$	0.9358	-1.44
$OCF_t \times PRIOR\_POSDACC_t$	-0.4011	-0.82
$OCF2_t \times PRIOR\_NEGDACC_t$	-1.792 ***	-3.04
$SIZE_t$	0.0010 *	1.80
DTA_t	0.0112 **	2.34
$GROWTH_t$	-0.0400 ***	-7.98
Annual fixed effects?	Yes	
Economic sector fixed effects?	Yes	
Likelihood ratio, $\chi 2$	2,797.3 ***	
-2 Res Log Likelihood	-13,603.2	

Notes:

OCF is the operating cash flow component of earnings, which is defined as the difference between the accrual-based net income before the extraordinary items (NI) and the accounting accruals (ACCR). The accruals (ACCR) are calculated using the balance sheet approach and are defined as the change in non-cash current assets minus the change in the current non-interest bearing liabilities minus depreciation and amortization; NI and ACCR are both scaled by the opening total assets; PRIOR_FAIL1 is the cumulative frequency of prior Type 1 audit reporting errors for auditor *i* for the period 2001-*t-1*; PRIOR_FAIL1 is calculated by dividing the cumulative number of companies that did not file for bankruptcy within 12 months from the issuance of financial statements *and* for whom the auditor *i* did issue a going concern report by the number of all the auditor client companies that did not file for bankruptcy within 12 months from the issuance of the financial statements for the period 2001-*t-1*.PRIOR_FAIL2 is the cumulative frequency of prior Type 2 audit reporting errors for auditor *i* for the period 2001-*t-1*. PRIOR_FAIL2 is calculated by dividing the cumulative number of companies that filed for bankruptcy within 12 months from the issuance of the financial statements *and* for whom the auditor *i* did not issue a going concern report by the number of all the auditor client companies that filed for bankruptcy within 12 months from the issuance of the financial statements for the period 2001-*t-1*. SIZE is the natural logarithm of the total assets in Swedish crowns; DTA is the ratio of the debt to total assets; GROWTH is the growth in the total assets over the prior year in percentages; PRIOR_POSDACC is defined as the past median abnormal accruals if the median value is positive, otherwise zero; PRIOR_NEGDACC is defined as the absolute past median abnormal accruals if the median value is negative, otherwise zero In calculating both PRIOR_POSDACC and PRIOR_NEGDACC the auditor under observation is excluded. PRIOR_POSDACC_FIRM is the past audit firm-level PRIOR_POSDACC and PRIOR_NEGDACC_FIRM is the past audit firm-level PRIOR_NEGDACC (in calculating both the PRIOR_POSDACC_FIRM and PRIOR_NEGDACC_FIRM, the auditor under observation is omitted)._Statistical significance is calculated by adjusting the standard errors for clustering within firms. Asterisks ***, **, and *, denote two-tailed statistical significance at the 1 percent, 5 percent, and 10 percent levels, respectively.

Table 7 Analyses of credit market-perceived audit quality

Dependent variable	CRATE		RISK		DEBTRATE		RISK	
	(1) Coef.	$\chi 2$	(2) Coef.	t-value	(3) Coef.	t-value	(4) Coef.	t-value
PRIOR_FAIL1	-0.350	1.88	0.405	0.76	0.0086	0.22	0.130	0.26
PRIOR_FAIL2	-1.760 ***	17.24	3.042 ***	3.34	0.0057 ***	4.39	2.924 ***	2.80
PRIOR_FAIL1_FIRM	1.880	2.22	-0.947	-1.56	-0.247	-0.46	-0.920	-1.48
PRIOR_FAIL2_FIRM	-0.405	0.85	2.252	1.44	1.008	1.02	2.306	1.56
GCO	-1.162 ***	33.26	4.009 ***	3.05	0.0091 **	2.02	3.098 ***	2.70
MODIF	-0.748 ***	323.24	1.780 ***	9.93	0.0055 ***	2.72	1.762 ***	8.76
GCO × PRIOR_FAIL1							-8.496 *	-1.82
GCO × PRIOR_FAIL2							14.108 **	1.98
SIZE	0.302 ***	495.80	-0.198 ***	-7.64	-0.0002	-0.18	-0.166 ***	-6.20
DTA	-2.510 ***	649.95	2.428 ***	11.33	-0.0208 ***	-6.95	2.492 ***	11.69
PPE	0.713 ***	112.10	-0.039	-0.30	0.0094 ***	3.76	-0.020	-0.15
LOGAGE	0.349 ***	130.02	-0.228 ***	-3.60	-0.0018	-1.58	-0.228 ***	-3.74
CONTROL	0.140 ***	8.98	-0.364 ***	-3.58	-0.0069 ***	-4.45	-0.350 ***	-3.19
LIQUI	1.560 ***	372.28	-1.002 ***	-6.98	-0.0029	-1.60	-1.230 ***	-8.60
ROA	0.200 **	5.02	-1.219 ***	-3.96	-0.0212 ***	-7.04	-1.240 ***	-4.10
RISK	-		-		0.0005 ***	4.20	-	
PRIORITY	-0.782 ***	288.80	0.702 ***	5.56	-0.0038 **	-2.22	0.612 ***	5.55
BOARD_TENURE	0.085 ***	283.66	-0.074 ***	-9.80	-0.0004 **	-2.10	-0.073 ***	-9.64
UNPAID_DEBTS	-0.622 ***	8.80	1.542 ***	2.82	0.0018 **	2.69	1.516 ***	3.76
REPLAG	-0.390 ***	54.90	0.495 ***	5.00	0.0040 **	2.38	0.465 ***	3.92
EQ_HALF	-0.023	0.04	1.310 ***	2.88	0.0074 **	2.00	1.408 *	1.92
TENURE	0.017 ***	11.25	-0.046 ***	-4.78	-0.0002	-0.78	-0.048 ***	-4.98
CAREER	0.006 *	3.04	0.004	0.85	0.0001	1.22	0.005	0.82
OFFSIZE	0.002	0.05	-0.015	-0.80	0.0004	0.68	-0.022	-1.17
NBR_CLIENTS	-0.042	1.98	0.040	0.94	0.0003	0.30	0.047	1.18
Intercept	-3.204 ***	63.80	1.120	1.56	0.0364	1.04	1.584	0.80
Intercept2	-1.228 ***	13.21						
Intercept3	0.766 **	5.53						
Intercept4	2.374 ***	44.68						
Random firm intercept?	No		Yes		Yes		Yes	
Annual fixed effects?	Yes		Yes		Yes		Yes	
Industry fixed effects?	Yes		Yes		No		Yes	
Economic sector fixed effects?	No		No		Yes		No	
-2 Log Likelihood	49,344.0		103,533.7		-34,714.2		103,262.0	
Likelihood ratio, $\chi 2$	10,300.1 ***		6,651.4 ***		889.4 ***		6,834.9 ***	
Correctly classified	80.4 %							
Nagelkerke R^2	45.2 %							
N	18,613		18,613		12.806		18,613	

Notes:

CRATE is the credit rating issued for the client firm by the credit rating agency in which higher values indicate lower credit risk; RISK is the risk forecast issued for the client firm by the credit rating agency in which higher values indicate a greater probability of becoming insolvent within next 12 months; DEBTRATE is defined as the interest expenses paid to the financial institutions divided by the average amount of debt to the financial institutions between the ends of fiscal years *t-1* and *t*. PRIOR_FAIL1 is the cumulative frequency of prior Type 1 audit reporting errors for auditor *i* for the period 2001-*t-1*; PRIOR_FAIL1 is calculated by dividing the cumulative number of companies that did not file for bankruptcy

within 12 months from the issuance of financial statements *and* for whom the auditor *i* did issue a going concern report by the number of all the auditor client companies that did not file for bankruptcy within 12 months from the issuance of the financial statements for the period 2001-*t-1*. PRIOR_FAIL2 is the cumulative frequency of prior Type 2 audit reporting errors for auditor *i* for the period 2001-*t-1*. PRIOR_FAIL2 is calculated by dividing the cumulative number of companies that filed for bankruptcy within 12 months from the issuance of financial statements *and* for whom the auditor *i* did not issue a going concern report by the number of all the auditor client companies that filed for bankruptcy within 12 months from the issuance of the financial statements for the period 2001-*t-1*. In calculating both the PRIOR_FAIL1 and PRIOR_FAIL2 the auditor under observation is excluded. PRIOR_FAIL1_FIRM is the past audit firm-level type 1 reporting failure rate; PRIOR_FAIL2_FIRM is the past firm-level type 2 reporting failure rate (in calculating both the PRIOR_FAIL1_FIRM and PRIOR_FAIL2_FIRM, the auditor under observation is omitted); GCO is an indicator variable for the going concern audit opinions; MODIF is an indicator variable for the audit opinions containing an emphasis of matter paragraph; SIZE is the natural logarithm of the total assets in Swedish crowns; DTA is the ratio of the debt to total assets; PPE is the ratio of the property plant and the equipment to total assets; LOGAGE is the natural logarithm of the client firm *j* age in years in fiscal year *t*; CONTROL is a dummy variable with a value of one if the firm has a controlling shareholder and is otherwise zero; LIQUI is the ratio of cash and cash equivalents to total liabilities; ROA is the return on assets; PRIORITY is an indicator variable for the existence of loan priority over other interested parties in case of bankruptcy; BOARD_TENURE is the mean tenure of the board in years; UNPAID_DEBTS is the proportion of unpaid debts to total assets; REPLAG is the natural log of number of days between fiscal year end and date when the financial report was filed with the Swedish company register Bolagsverket; EQ_HALF is a dummy variable with a value of one if the amount of equity capital is less than half of the share capital for client *j* in fiscal year *t*; TENURE is the number of years the auditor *i* has been the auditor-in-charge for client firm *j* in fiscal year *t*. CAREER is the number of years since the auditor *i* certification date; OFFSIZE is the natural logarithm of the number of auditors in the audit office. NBR_CLIENTS is the natural logarithm of the number of auditor's all engagements. The statistical significance is calculated by adjusting the standard errors for two-way clustering: i.e., within-client firms (repeated measurement) and individual auditors (Petersen 2009). Asterisks ***, **, and *, denote two-tailed statistical significance at the 1 percent, 5 percent, and 10 percent levels, respectively.

Table 8 Analyses of credit market-perceived audit quality

Dependent variable	CRATE		RISK		DEBTRATE		RISK	
	(1) Coef.	$\chi 2$	(2) Coef.	t-value	(3) Coef.	t-value	(4) Coef.	t-value
PRIOR_POSDACC	-3.830 ***	21.82	7.249 ***	4.48	0.0182 ***	4.46	7.794 ***	4.90
PRIOR_NEGDACC	-0.504	1.06	0.188	0.70	0.0002	0.02	0.101	0.59
PRIOR_POSDACC_FIRM	0.128	0.39	-0.062	-0.12	0.0010	0.18	-0.050	-0.08
PRIOR_NEGDACC_FIRM	-0.155	0.62	0.004	0.01	-0.0003	-0.04	-0.006	-0.06
GCO	-1.170 ***	33.90	3.980 ***	2.93	0.0092 **	2.06	3.030 ***	2.70
MODIF	-0.738 ***	319.76	1.782 ***	9.94	0.0055 ***	2.70	1.722 ***	8.92
GCO × PRIOR_POSDACC							21.524 **	2.36
GCO × PRIOR_NEGDACC							-14.186 *	-1.94
SIZE	0.303 ***	496.00	-0.199 ***	-7.70	-0.0003	-0.26	-0.180 ***	-7.00
DTA	-2.494 ***	642.22	2.436 ***	11.44	-0.0204 ***	-6.66	2.446 ***	11.62
PPE	0.725 ***	114.24	-0.070	-0.62	0.0090 ***	3.66	-0.005	-0.03
LOGAGE	0.349 ***	129.80	-0.226 ***	-3.51	-0.0020*	-1.69	-0.226 ***	-3.53
CONTROL	0.141 ***	9.08	-0.365 ***	-3.62	-0.0070 ***	-4.50	-0.351 ***	-3.49
LIQUI	1.555 ***	370.90	-1.082 ***	-7.06	-0.0035 *	-1.74	-1.110 ***	-7.76
ROA	0.212 **	5.25	-1.220 ***	-3.98	-0.0210 ***	-6.98	-1.232 ***	-4.04
RISK	-		-		0.0005 ***	4.22	-	
PRIORITY	-0.783 ***	288.96	0.702 ***	5.55	-0.0038 **	-2.19	0.669 ***	5.04
BOARD_TENURE	0.085 ***	283.50	-0.075 ***	-9.98	-0.0004 **	-2.12	-0.074 ***	-9.85
UNPAID_DEBTS	-0.624 ***	8.91	1.512 ***	2.70	0.0019 ***	2.76	1.490 **	2.52
REPLAG	-0.388 ***	54.10	0.496 ***	5.06	0.0041 **	2.44	0.487 ***	4.83
EQ_HALF	-0.053	0.16	1.330 ***	3.02	0.0075 **	2.12	1.370 ***	3.24
TENURE	0.017 ***	11.22	-0.046 ***	-4.76	-0.0001	-0.48	-0.046 ***	-4.76
CAREER	0.004	2.44	0.004	0.77	0.0001	1.25	0.003	0.56
OFFSIZE	0.003	0.18	-0.004	-0.04	0.0003	0.46	-0.010	-0.33
NBR_CLIENTS	-0.044	2.18	0.003	0.01	0.0004	0.58	0.014	0.21
Intercept	-3.384 ***	67.58	1.032	1.31	0.0351	0.96	0.994	1.09
Intercept2	-1.308 ***	14.90						
Intercept3	0.720 **	4.92						
Intercept4	2.290 ***	41.12						
Random firm intercept?	No		Yes		Yes		Yes	
Annual fixed effects?	Yes		Yes		Yes		Yes	
Industry fixed effects?	Yes		Yes		No		Yes	
Economic sector fixed effects?	No		No		Yes		No	
-2 Log Likelihood	49,012.6		103,246.2		-34,800.8		103,003.1	
Likelihood ratio, $\chi 2$	10,631.5 ***		6,938.9 ***		976.0 ***		7,078.0 ***	
Correctly classified	80.7 %							
Nagelkerke R^2	45.4 %							
N	18,613		18,613		12.806		18,613	

Notes:
CRATE is the credit rating issued for the client firm by the credit rating agency in which higher values indicate lower credit risk; RISK is the risk forecast issued for the client firm by the credit rating agency in which higher values indicate a greater probability of becoming insolvent within next 12 months; DEBTRATE is defined as the interest expenses paid to the financial institutions divided by the average amount of debt to the financial institutions between the ends of fiscal years *t-1* and *t*. PRIOR_POSDACC is defined as the past median abnormal accruals if the median value is positive, otherwise zero; PRIOR_NEGDACC is defined as the absolute past median abnormal accruals if the median value is negative, otherwise zero In calculating both PRIOR_POSDACC and PRIOR_NEGDACC the auditor under observation is excluded. PRIOR_POSDACC_FIRM is the past audit firm-level

PRIOR_POSDACC and PRIOR_NEGDACC_FIRM is the past audit firm-level PRIOR_NEGDACC (in calculating both the PRIOR_POSDACC_FIRM and PRIOR_NEGDACC_FIRM, the auditor under observation is omitted);_GCO is an indicator variable for the going concern audit opinions; MODIF is an indicator variable for the audit opinions containing an emphasis of matter paragraph; SIZE is the natural logarithm of the total assets in Swedish crowns; DTA is the ratio of the debt to total assets; PPE is the ratio of the property plant and the equipment to total assets; LOGAGE is the natural logarithm of the client firm *j* age in years in fiscal year *t*; CONTROL is a dummy variable with a value of one if the firm has a controlling shareholder and is otherwise zero; LIQUI is the ratio of cash and cash equivalents to total liabilities; ROA is the return on assets; PRIORITY is an indicator variable for the existence of loan priority over other interested parties in case of bankruptcy; BOARD_TENURE is the mean tenure of the board in years; UNPAID_DEBTS is the proportion of unpaid debts to total assets; REPLAG is the natural log of number of days between fiscal year end and date when the financial report was filed with the Swedish company register Bolagsverket; EQ_HALF is a dummy variable with a value of one if the amount of equity capital is less than half of the share capital for client *j* in fiscal year *t*; TENURE is the number of years the auditor *i* has been the auditor-in-charge for client firm *j* in fiscal year *t*. CAREER is the number of years since the auditor *i* certification date; OFFSIZE is the natural logarithm of the number of auditors in the audit office. NBR_CLIENTS is the natural logarithm of the number of auditor's all engagements. The statistical significance is calculated by adjusting the standard errors for two-way clustering: i.e., within-client firms (repeated measurement) and individual auditors (Petersen 2009). Asterisks ***, **, and *, denote two-tailed statistical significance at the 1 percent, 5 percent, and 10 percent levels, respectively.

Table 9 Descriptive statistics among publicly listed sample companies

Variable	Mean	Std.	Min	25%tile	Median	75%tile	Max	N
PRIOR_FAIL2 [a]	0.664	0.302	0	0.510	0.740	0.812	1	1,233
PRIOR_FAIL1 [a]	0.040	0.046	0	0	0.032	0.057	0.333	1,233
PRIOR_FAIL2_FIRM [a]	0.026	0.036	0.019	0.023	0.026	0.031	0.039	1,233
PRIOR_FAIL1_FIRM [a]	0.040	0.007	0.027	0.032	0.039	0.048	0.056	1,233
PRIOR_POSDACC [a]	0.022	0.033	0	0	0.014	0.031	0.441	1,233
PRIOR_NEGDACC [a]	0.026	0.044	0	0	0	0.038	0.379	1,233
OCF_{t+1} [a]	0.072	0.257	-1.507	0.016	0.080	0.135	2.675	1,233
OCF_t [a]	0.061	0.272	-1.507	0.009	0.080	0.133	2.675	1,233
$ACCR_t$ [a]	-0.029	0.195	-1.418	-0.082	-0.035	0.016	2.162	1,233
DTA [a]	0.174	0.169	0	0.032	0.136	0.279	0.792	1,233
SIZE [a]	14.08	2.17	9.82	12.51	13.59	15.37	21.84	1,233
GROWTH [a]	0.228	0.795	-0.962	-0.011	0.081	0.224	8.334	1,233
DA [b]	-0.001	0.071	-0.258	-0.039	-0.004	0.032	0.364	1,075
PRIOR_FAIL2 [b]	0.665	0.302	0	0.510	0.730	0.813	1	1,075
PRIOR_FAIL1 [b]	0.041	0.046	0	0	0.033	0.057	0.333	1,075
PRIOR_POSDACC [b]	0.022	0.032	0	0	0.014	0.031	0.441	1,075
PRIOR_NEGDACC [b]	0.025	0.043	0	0	0	0.037	0.379	1,075
PRIOR_POSDACC_FIRM [b]	0.023	0.005	0.014	0.020	0.023	0.025	0.040	1,075
PRIOR_NEGDACC_FIRM [b]	0.016	0.010	0.002	0.010	0.013	0.018	0.057	1,075
LOGMVAL [b]	15.03	1.75	10.38	13.81	14.93	16.18	19.83	1,075
GROWTH [b]	0.204	0.523	-0.566	0.011	0.093	0.218	5.358	1,075
SPECIAL [b]	0.035	0.185	0	0	0	0	1	1,075
ROA [b]	0.045	0.212	-1.669	0.030	0.075	0.121	0.642	1,075
DTA [b]	0.182	0.160	0	0.036	0.151	0.294	0.623	1,075
LOSS [b]	0.200	0.400	0	0	0	0	1	1,075
INVREC [b]	0.352	0.181	0.019	0.215	0.351	0.474	0.889	1,075
PB [b]	3.52	3.83	0.34	1.66	2.68	4.30	54.91	1,075
QR [b]	1.359	1.258	0.108	0.797	1.022	1.496	12.596	1,075
TENURE [b]	5.12	5.90	1	2	6	12	26	1,075
OFFSIZE [b]	3.994	1.447	0	2.944	4.820	4.852	5.384	1,075
CAREER [b]	19.82	5.847	2	16	20	24	36	1,075
LNQ [b]	0.389	0.712	-1.268	0.102	0.336	0.971	4.330	1,595
ATURN [c]	1.172	0.976	0.001	0.587	1.052	1.626	11.795	1,595
CAPEX [c]	0.072	0.195	0	0.009	0.020	0.043	1.661	1,595

Notes:

[a] Conditional on the observations used in Panel A of Table 9.[b] Conditional on the observations used in Panel B Table 9.[c] Conditional on the observations used in Table 10.PRIOR_FAIL2 is the cumulative frequency of prior Type 2 audit reporting errors for auditor *i* for the period 2001-*t-1*. PRIOR_FAIL2 is calculated by dividing the cumulative number of companies that filed for bankruptcy within 12 months from the issuance of financial statements *and* for whom the auditor *i* did not issue a going concern report by the number of all the auditor client companies that filed for bankruptcy within 12 months from the issuance of the financial statements for the period 2001-*t-1*. PRIOR_FAIL1 is the cumulative frequency of prior Type 1 audit reporting errors for auditor *i* for the period 2001-*t-1*; PRIOR_FAIL1 is calculated by dividing the cumulative number of companies that did not file for bankruptcy within 12 months from the issuance of financial statements *and* for whom the auditor *i* did issue a going concern report by the number of all the auditor client companies that did not file for bankruptcy within 12 months from the issuance of the financial statements for the period 2001-*t-1*. PRIOR_FAIL1_FIRM is the past audit firm-level type 1 reporting failure rate; PRIOR_FAIL2_FIRM is the past firm-level type 2 reporting failure rate (in calculating both the PRIOR_FAIL1_FIRM and PRIOR_FAIL2_FIRM, the auditor under observation is omitted); PRIOR_POSDACC is defined as the past median abnormal accruals if the median value is positive, otherwise zero; PRIOR_NEGDACC is defined as the absolute past median abnormal accruals if the median value is negative, otherwise zero In calculating both PRIOR_POSDACC and PRIOR_NEGDACC the auditor under observation is excluded. OCF is operating cash flows taken from cash flow statement. ACCR is the difference between net income and operating cash flows taken from cash flow statement; DTA is ratio of debt to total assets; SIZE is the natural logarithm of total assets in thousands of Swedish crowns; GROWTH is the percentage change in sales for client *j*

between years *t* and *t-1*; DA is the amount of discretionary accruals estimated from the modified Jones (1991) model as extended by Ball and Shivakumar (2006) taking into account the non-linearity between gains and losses; PRIOR_POSDACC_FIRM is the past audit firm-level PRIOR_POSDACC and PRIOR_NEGDACC_FIRM is the past audit firm-level PRIOR_NEGDACC (in calculating both the PRIOR_POSDACC_FIRM and PRIOR_NEGDACC_FIRM, the auditor under observation is omitted);_LOGMVAL is the natural logarithm of the natural logarithm of market value of equity; SPECIAL is a dummy variable with a value of one if a firm reported a special item, zero otherwise; ROA is the return on total assets; LOSS is a dummy variable with a value of one if a firm reported an accounting loss, zero otherwise; INVREC is the ratio of the inventories and receivables to the total assets; PB is the price-to-book ratio; QR is the quick ratio; TENURE is the number of years the auditor *i* has been the auditor-in-charge for client firm *j* in fiscal year *t*. OFFSIZE is the natural logarithm of the number of auditors in the audit office; CAREER is the number of years since the auditor *i* certification date. LNQ is the natural logarithm of Tobin's Q, which is the ratio of the market value of a firm to the replacement cost of its assets. We define Tobin's Q as the market value of equity plus the book value of debt divided by the book value of total assets. ATURN is the asset turnover defined as total sales divided by total assets; CAPEX is the ratio of capital expenditures to sales.

Table 10: Pearson's correlation coefficients among publicly listed companies

Panel A: Pearson's correlation coefficients among the variables used in Panel A of Table 11 (N=1,233)

	2	3	4	5	6	7	8
PRIOR_FAIL2 (1)	**-0.064**	**-0.051**	**-0.049**	**-0.064**	0.012	**-0.055**	**-0.058**
PRIOR_FAIL1 (2)	**1**	-0.022	-0.024	-0.029	0.012	**-0.180**	-0.012
OCF_{t+1} (3)		**1**	**0.296**	**0.124**	-0.049	**0.112**	-0.021
OCF_t (4)			**1**	**-0.348**	-0.038	**0.285**	0.050
$ACCR_t$ (5)				**1**	-0.023	0.012	**0.163**
DTA (6)					**1**	**0.372**	**0.085**
SIZE (7)						**1**	-0.054
GROWTH (8)							**1**

Panel B: Pearson's correlation coefficients among the variables used in Panel B of Tables12 and 13 (N=1,

	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
DA (1)	**0.078**	**-0.067**	-0.010	0.012	**0.106**	**-0.079**	**0.109**	**0.075**	**-0.068**	**0.108**	**-0.086**	**-0.163**	**0.118**	**0.218**	**0.085**	**-0.015**	**0.030**	**-0.1**
PRIOR_FAIL2 (2)	**1**	-0.024	-0.005	0.003	**0.309**	**-0.078**	**-0.057**	**-0.057**	0.035	-0.030	0.013	**0.084**	-0.010	-0.019	0.025	**-0.047**	0.029	0.0
PRIOR_FAIL1 (3)		**1**	0.007	-0.005	**-0.093**	**0.415**	**-0.182**	-0.010	0.029	0.034	0.012	**0.076**	0.008	-0.042	0.031	-0.045	-0.009	**-0.1**
PRIOR_FAIL1_FIRM (4)			**1**	-0.006	-0.010	0.006	0.020	0.013	-0.030	0.019	-0.033	0.029	**0.054**	0.009	**0.048**	0.025	0.008	0.01
PRIOR_FAIL2_FIRM (5)				**1**	0.008	0.005	**-0.042**	-0.017	0.037	0.031	0.022	**0.051**	**0.050**	-0.011	-0.018	-0.014	0.001	-0.0
PRIOR_POSDACC (6)					**1**	Na*	**-0.071**	-0.027	0.007	**0.055**	0.018	**0.061**	**0.044**	-0.016	0.012	-0.021	-0.027	0.0
PRIOR_NEGDACC (7)						**1**	0.019	0.010	0.041	-0.037	0.018	**-0.057**	0.026	0.015	**0.060**	0.011	-0.034	-0.0
LOGMVAL (8)							**1**	-0.050	0.046	**0.321**	**0.298**	**0.310**	-0.050	**0.188**	**-0.104**	**-0.126**	**0.099**	**0.0**
GROWTH (9)								**1**	-0.016	0.029	**-0.099**	0.040	**-0.176**	**0.060**	**0.144**	**0.067**	0.007	0.0
SPECIAL (10)									**1**	0.054	0.050	**-0.081**	**-0.089**	-0.042	-0.042	-0.036	0.028	-0.0
ROA (11)										**1**	**0.114**	**-0.569**	**0.084**	**0.068**	**-0.421**	**0.060**	0.003	-0.0
DTA (12)											**1**	**-0.072**	0.014	0.011	**-0.325**	-0.040	**-0.077**	0.02
LOSS (13)												**1**	**-0.134**	-0.047	0.021	**-0.059**	0.030	**-0.1**
INVREC (14)													**1**	0.022	**-0.315**	-0.032	**-0.121**	0.0
PB (15)														**1**	**0.098**	**0.095**	0.038	**0.0**
QR (16)															**1**	0.021	0.027	-0.0
TENURE (17)																**1**	**-0.237**	**0.1**
OFFSIZE (18)																	**1**	**0.0**
CAREER (19)																		**1**

Panel C: Pearson's correlation coefficients among the variables used in Table 14 (N=1,595)

	2	3	4	5	6	7	8	9	10	11	12
LNQ (1)	**-0.047**	0.020	**-0.286**	**-0.232**	-0.020	**-0.090**	**-0.058**	0.015	**0.063**	0.024	0.005
PRIOR_FAIL2 (2)	**1**	-0.062	**-0.107**	**-0.055**	**0.049**	**-0.063**	0.041	0.002	-0.027	0.012	**-0.131**
PRIOR_FAIL1 (3)		**1**	**-0.157**	-0.009	**0.209**	0.026	0.013	0.036	-0.032	-0.016	**-0.107**
SIZE (4)			**1**	**0.328**	**-0.436**	**0.048**	**-0.142**	**0.114**	**-0.067**	**0.054**	**0.139**
DTA (5)				**1**	-0.033	0.040	**-0.134**	**0.248**	**-0.082**	**-0.055**	0.041
SPECIAL (6)					**1**	0.028	**0.118**	**-0.128**	-0.002	**-0.093**	**-0.103**
ROA (7)						**1**	**0.055**	**-0.049**	**0.056**	0.006	0.017
ATURN (8)							**1**	**-0.261**	0.014	**-0.055**	0.012
CAPEX (9)								**1**	0.030	-0.015	-0.012
TENURE (10)									**1**	**-0.174**	**0.179**
OFFSIZE (11)										**1**	**0.103**
CAREER (12)											**1**

Notes:

PRIOR_FAIL2 is the cumulative frequency of prior Type 2 audit reporting errors for auditor *i* for the period 2001-*t-1*. PRIOR_FAIL2 is calculated by dividing the cumulative number of companies that filed for bankruptcy within 12 months of the issuance of the financial statements *and* for whom the auditor *i* did not issue a going concern report by the number of all the auditor client companies that filed for bankruptcy within 12 months from the issuance of the financial statements for the period 2001-*t-1*. PRIOR_FAIL1 is the cumulative frequency of prior Type 1 audit reporting errors for auditor *i* for the period 2001-*t-1*; PRIOR_FAIL1 is calculated by dividing the cumulative number of companies that did not file for bankruptcy within 12 months from the issuance of financial statements *and* for whom the auditor *i* did issue a going concern report by the number of all the auditor client companies that did not file for bankruptcy within 12 months from the issuance of the financial statements for the period 2001-*t-1*. OCF is operating cash flows taken from cash flow statement. ACCR is the difference between net income and operating cash flows taken from cash flow statement; SIZE is the natural logarithm of the total assets in Swedish crowns; DTA is the ratio of the debt to total assets; GROWTH is the percentage growth in the total assets over the prior year; DA is the amount of discretionary accruals estimated from the modified Jones (1991) model as extended by Ball and Shivakumar (2006) taking into account the non-linearity between gains and losses; LOGMVAL is the natural logarithm of the natural logarithm of market value of equity; SPECIAL is a dummy variable with a value of one if a firm reported a special item, zero otherwise; ROA is the return on total assets; LOSS is a dummy variable with a value of one if a firm reported an accounting loss, zero otherwise; ; INVREC is the ratio of the inventories and receivables to the total assets; PB is the price-to-book ratio; QR is the quick ratio; TENURE is the number of years the auditor *i* has been the auditor-in-charge for client firm *j* in fiscal year *t*. OFFSIZE is the natural logarithm of the number of auditors in the audit office; CAREER is the number of years since the auditor *i* certification date.

Table 11 Tests of persistency in accruals and cash flows among publicly listed firms (N = 1,233)

Dependent Variable		$OCF2_{t+1}$ (1)		$OCF2_{t+1}$ (2)	
	Pred.	Coef.	t-value	Coef.	t-value
Intercept		-0.4441 ***	-3.82	-0.3446 ***	-2.88
$ACCR2_t$	+	0.1856 ***	7.91	0.2092 **	8.44
$OCF2_t$	+	0.3758 ***	5.49	0.4088 ***	6.10
$PRIOR\_FAIL1_t$	?			0.5248 ***	2.78
$PRIOR\_FAIL2_t$	?			-0.0164	-0.24
$ACCR2_t \times PRIOR\_FAIL1_t$	−			-0.1190	-0.23
$ACCR2_t \times PRIOR\_FAIL2_t$	−			-0.9387 **	-2.08
$OCF2_t \times PRIOR\_FAIL1_t$	?			-0.6278 **	-2.04
$OCF2_t \times PRIOR\_FAIL2_t$	?			-0.7367 **	-2.23
$SIZE_t$	+	0.0088 **	2.49	0.0069 *	1.90
DTA_t	?	-0.1067 **	-2.46	-0.0903 **	2.09
$GROWTH_t$	−	-0.0024 ***	-3.40	-0.0019 ***	-2.73
Annual fixed effects?		Yes		Yes	
Economic sector fixed effects?		Yes		Yes	
Likelihood ratio, $\chi 2$		189.6 ***		236.9 ***	
-2 Res Log Likelihood		-218.2		-265.5	

Notes:

OCF2 is operating cash flows taken from cash flow statement. ACCR2 is the difference between net income and operating cash flows taken from cash flow statement; *PRIOR_POSDACC* is defined as the past median abnormal accruals if the median value is positive, otherwise zero; *PRIOR_NEGDACC* is defined as the absolute past median abnormal accruals if the median value is negative, otherwise zero In calculating both *PRIOR_POSDACC* and *PRIOR_NEGDACC* the auditor under observation is excluded. SIZE is the natural logarithm of the total assets in Swedish crowns; DTA is the ratio of the debt to total assets; GROWTH is the growth in the total assets over the prior year in percentages;

Table 12 Regression results for discretionary accruals among publicly listed companies

Dependent Variable	DA (1)		DA if DA > 0 (2)		|DA| if DA < 0 (3)	
	Coef.	t-value	Coef.	t-value	Coef.	t-value
Intercept	-0.072 ***	-2.82	-0.014	-0.37	-0.070 ***	-2.65
Experimental variables						
PRIOR_FAIL1	-0.263 **	-2.02	-0.700 ***	-4.56	-0.333 ***	-3.00
PRIOR_FAIL2	0.076 ***	3.30	0.039 **	2.04	0.040 **	2.02
Control variables						
PRIOR_FAIL2_FIRM	0.422	0.48	0.300	0.11	0.849	0.45
PRIOR_FAIL1_FIRM	-0.660	0.10	-0.591	0.08	0.909	0.50
LOGMVAL	0.003 *	1.92	0.004 **	2.12	0.0005	0.48
GROWTH	0.014 ***	3.38	0.014 ***	3.40	-0.009 **	-2.32
SPECIAL	-0.022 *	-1.95	0.009	0.54	0.019 **	2.18
ROA	0.002	0.08	0.017	1.14	-0.030 **	-2.34
DTA	-0.031 **	-2.18	-0.073 ***	-4.15	0.027 **	1.76
LOSS	-0.029 ***	-3.72	0.001	0.05	-0.016 **	-2.85
INVREC	0.052 ***	3.94	0.020	1.20	0.038 ***	2.92
PB	0.003 ***	5.16	0.001 **	2.46	-0.001	-1.46
QR	0.007 ***	3.28	-0.001	.0.02	-0.001	-0.06
TENURE	0.001	0.63	0.002	-0.35	0.001 **	2.00
OFFSIZE	0.003 *	1.80	0.002	1.18	0.002	1.46
CAREER	-0.002 ***	-4.92	-0.001 **	-2.18	-0.001 **	-2.24
Annual fixed effects?	yes		yes		Yes	
Industry fixed effects?	yes		yes		Yes	
Random firm intercept?	yes		yes		Yes	
N	1,075		514		561	
Likelihood ratio, $\chi 2$	202.3 ***		214.4 ***		174.5 ***	
-2 Res Log Likelihood	-2,836.2		-1,750.9		-2,067.2	

Notes;

DA is the amount of discretionary accruals estimated from the modified Jones (1991) model as extended by Ball and Shivakumar (2006) taking into account the non-linearity between gains and losses; PRIOR_FAIL1 is the cumulative frequency of prior Type 1 audit reporting errors for auditor *i* for the period 2001-*t-1*; PRIOR_FAIL2 is the cumulative frequency of prior Type 2 audit reporting errors for auditor *i* for the period 2001-*t-1*. PRIOR_FAIL2 is calculated by dividing the cumulative number of companies that filed for bankruptcy within 12 months from the issuance of financial statements *and* for whom the auditor *i* did not issue a going concern report by the number of all the auditor client companies that filed for bankruptcy within 12 months from the issuance of the financial statements for the period 2001-*t-1*. LOGMVAL is the natural logarithm of the natural logarithm of market value of equity; GROWTH is the percentage change in sales for client *j* between years *t* and *t-1*; SPECIAL is a dummy variable with a value of one if a firm reported a special item, zero otherwise; ROA is the return on total assets; DTA is ratio of debt to total assets; LOSS is a dummy variable with a value of one if a firm reported an accounting loss, zero otherwise; ; INVREC is the ratio of the inventories and receivables to the total assets; PB is the price-to-book ratio; QR is the quick ratio; TENURE is the number of years the auditor *i* has been the auditor-in-charge for client firm *j* in fiscal year *t*. OFFSIZE is the natural logarithm of the number of auditors in the audit office; CAREER is the number of years since the auditor *i* certification date. Statistical significance based on two-tailed tests at the 1 percent, 5 percent, and 10 percent levels are denoted by ***, **, and *, respectively. All the parameters are estimated by the maximum likelihood principle within a model taking into account the correlation between observations from the same firm. Furthermore, all t-statistics are calculated by estimating the standard errors of the parameter estimators by the so-called sandwich technique originally suggested by White (1980), robust with respect to heteroskedasticity. For simplicity, results for the fixed effects are not reported.

Table 13 Regression results for discretionary accruals among publicly listed companies

Variable	DA (1)		DA if DA > 0 (2)		|DA| if DA < 0 (3)	
	Coef.	t-value	Coef.	t-value	Coef.	t-value
Intercept	-0.068 ***	-2.68	-0.018	-0.62	-0.066 **	-2.49
Experimental variables						
PRIOR_POSDACC	0.7976 ***	3.46	1.721 ***	5.80	0.838 **	-2.52
PRIOR_NEGDACC	-0.7011 ***	-2.89	-1.302 ***	4.01	-0.990 ***	3.23
Control variables						
PRIOR_POSDACC_FIRM	0.044	0.02	0.100	0.22	0.067	0.09
PRIOR_NEGDACC_FIRM	0.108	0.16	-0.149	0.86	0.009	0.02
LOGMVAL	0.003 *	1.94	0.004 **	2.08	0.001	0.76
GROWTH	0.014 ***	3.33	0.014 ***	3.40	-0.009 **	-2.37
SPECIAL	-0.022 *	-1.92	0.011	0.90	0.018 **	2.00
ROA	0.010	0.77	0.015	1.02	-0.031 **	-2.44
DTA	-0.032 **	-2.24	-0.073 ***	-4.20	0.025 *	1.69
LOSS	-0.029 ***	-3.70	0.009	0.25	-0.017 **	-2.96
INVREC	0.051 ***	3.84	0.021	1.23	0.038 ***	2.90
PB	0.003 ***	5.10	0.001 **	2.40	-0.001	-1.51
QR	0.008 ***	3.36	0.009	0.15	0.010	0.21
TENURE	0.001	0.40	0.003	-0.51	0.001 **	2.10
OFFSIZE	0.002	1.61	0.002	1.10	0.002	1.43
CAREER	-0.002 ***	-4.98	-0.001 **	-2.11	-0.001 **	-2.36
Annual fixed effects?	yes		yes		Yes	
Industry fixed effects?	yes		yes		Yes	
Random firm intercept?	yes		yes		Yes	
N	1,075		514		561	
Likelihood ratio, $\chi 2$	225.1 ***		254.2 ***		208.8 ***	
-2 Res Log Likelihood	-2,863.2		-1,790.7		-2,101.5	

Notes;
DA is the amount of discretionary accruals estimated from the modified Jones (1991) model as extended by Ball and Shivakumar (2006) taking into account the non-linearity between gains and losses; PRIOR_POSDACC is defined as the past median abnormal accruals if the median value is positive, otherwise zero; PRIOR_NEGDACC is defined as the absolute past median abnormal accruals if the median value is negative, otherwise zero In calculating both PRIOR_POSDACC and PRIOR_NEGDACC the auditor under observation is excluded. PRIOR_POSDACC_FIRM is the past audit firm-level PRIOR_POSDACC and PRIOR_NEGDACC_FIRM is the past audit firm-level PRIOR_NEGDACC (in calculating both the PRIOR_POSDACC_FIRM and PRIOR_NEGDACC_FIRM, the auditor under observation is omitted); LOGMVAL is the natural logarithm of the natural logarithm of market value of equity; GROWTH is the percentage change in sales for client *j* between years *t* and *t-1*; SPECIAL is a dummy variable with a value of one if a firm reported a special item, zero otherwise; ROA is the return on total assets; DTA is ratio of debt to total assets; LOSS is a dummy variable with a value of one if a firm reported an accounting loss, zero otherwise; ; INVREC is the ratio of the inventories and receivables to the total assets; PB is the price-to-book ratio; QR is the quick ratio; TENURE is the number of years the auditor *i* has been the auditor-in-charge for client firm *j* in fiscal year *t*. OFFSIZE is the natural logarithm of the number of auditors in the audit office; CAREER is the number of years since the auditor *i* certification date. Statistical significance based on two-tailed tests at the 1 percent, 5 percent, and 10 percent levels are denoted by ***, **, and *, respectively. All the parameters are estimated by the maximum likelihood principle within a model taking into account the correlation between observations from the same firm. Furthermore, all t-statistics are calculated by estimating the standard errors of the parameter estimators by the so-called sandwich technique originally suggested by White (1980), robust with respect to heteroskedasticity. For simplicity, results for the fixed effects are not reported.

Table 14 Regression results for Tobin's q among publicly listed companies

Variable	LNQ (1)		LNQ (2)		LNQ (3)	
	Coef.	t-value	Coef.	t-value	Coef.	t-value
Intercept	1.6246 ***	4.80	1.6640 ***	4.92	2.4522 ***	7.10
PRIOR_FAIL1			-0.3111	-0.50	-0.3002	-0.45
PRIOR_FAIL2			-0.3685 ***	-3.64	-0.3808 ***	-4.02
PRIOR_FAIL1_FIRM			0.2689	0.38	0.1863	0.18
PRIOR_FAIL2_FIRM			0.2074	0.06	0.3899	0.08
SIZE	-0.1211 ***	-7.00	-0.1290 ***	-7.25	-0.1779 ***	-7.18
DTA	0.0988 *	1.88	0.1198 **	2.16	0.1510 **	1.96
SPECIAL	-0.1012 **	-2.78	-0.1082 ***	-2.96	-0.0890 **	-2.33
ROA	0.0392 *	1.88	0.0460 **	2.04	0.0480 **	2.49
ATURN	0.0502 ***	3.20	0.0558 ***	3.70	0.0627 ***	4.44
CAPEX	-0.1687 **	-2.30	-0.1728 **	-2.31	-0.2004 ***	-3.01
TENURE	-0.0012	-0.62	-0.0010	-0.25	-0.0002	-0.04
OFFSIZE	0.0017	0.15	0.0008	0.07	0.0024	0.08
CAREER	-0.0019	-0.92	-0.0022	-1.63	-0.0040 **	-2.26
Annual fixed effects?	yes		yes		yes	
Industry fixed effects?	yes		yes		no	
Random firm intercept?	yes		yes		no	
Firm fixed effects?	no		no		yes	
N	1,595		1,595		1,595	
Likelihood ratio, $\chi 2$	2,667.7 ***		2,672.7 ***		3,601.3***	
-2 Res Log Likelihood	783.5		757.3		-150.1	

Notes;

LNQ is the natural logarithm of Tobin's Q, which is the ratio of the market value of a firm to the replacement cost of its assets. We define Tobin's Q as the market value of equity plus the book value of debt divided by the book value of total assets. PRIOR_FAIL1 is the cumulative frequency of prior Type 1 audit reporting errors for auditor *i* for the period 2001-*t-1*; PRIOR_FAIL1 is calculated by dividing the cumulative number of companies that did not file for bankruptcy within 12 months from the issuance of financial statements *and* for whom the auditor *i* did issue a going concern report by the number of all the auditor client companies that did not file for bankruptcy within 12 months from the issuance of the financial statements for the period 2001-*t-1*. PRIOR_FAIL2 is the cumulative frequency of prior Type 2 audit reporting errors for auditor *i* for the period 2001-*t-1*. PRIOR_FAIL2 is calculated by dividing the cumulative number of companies that filed for bankruptcy within 12 months from the issuance of financial statements *and* for whom the auditor *i* did not issue a going concern report by the number of all the auditor client companies that filed for bankruptcy within 12 months from the issuance of the financial statements for the period 2001-*t-1*. In calculating both the PRIOR_FAIL1 and PRIOR_FAIL2 the auditor under observation is excluded. PRIOR_FAIL1_FIRM is the past audit firm-level type 1 reporting failure rate; PRIOR_FAIL2_FIRM is the past audit firm-level type 2 reporting failure rate (in calculating both the PRIOR_FAIL1_FIRM and PRIOR_FAIL2_FIRM, the auditor under observation is omitted); SIZE is the natural logarithm of the total assets in Swedish crowns; DTA is the ratio of the debt to total assets; SPECIAL is a dummy variable with a value of one if a firm reported a special item, zero otherwise; ROA is the return on total assets; ATURN is the asset turnover defined as total sales divided by total assets; CAPEX is the ratio of capital expenditures to sales; TENURE is the number of years the auditor *i* has been the auditor-in-charge for client firm *j* in fiscal year *t*. OFFSIZE is the natural logarithm of the number of auditors in the audit office; CAREER is the number of years since the auditor *i* certification date; Statistical significance based on two-tailed tests at the 1 percent, 5 percent, and 10 percent levels are denoted by ***, **, and *, respectively. All the parameters are estimated by the maximum likelihood principle within a model allowing for correlation between observations from the same firm. Furthermore, all t-statistics are calculated by estimating the standard errors of the parameter estimators by the so-called sandwich technique originally suggested by White (1980), robust with respect to heteroskedasticity. For simplicity, results for the fixed effects are not reported.

Table 15 Firm fixed effect analysis of credit raters' perceived audit quality

Dependent variable	RISK	
	Coef.	t-value
PRIOR_FAIL1	0.859	0.38
PRIOR_FAIL2	1.323 **	2.02
PRIOR_FAIL2_FIRM	-0.403	-0.86
PRIOR_FAIL1_FIRM	0.909	0.47
GCO	4.035 ***	14.85
MODIF	0.464 ***	4.63
SIZE	-0.156 **	-2.04
DTA	1.612 ***	7.09
LOGAGE	-3.034 ***	-12.24
CONTROL	-0.247 ***	-2.54
CASH	-0.545 ***	-2.98
PRIORITY	0.498 ***	5.04
BOARD_TENURE	-0.036 ***	-3.08
UNPAID_DEBTS	0.151 **	2.40
REPLAG	0.298 **	2.38
EQ_HALF	1.774 ***	7.28
ROA	-1.428 ***	9.49
PPE	-0.082	0.83
REPLAG	0.008	0.09
NBR_CLIENTS	0.027	0.22
TENURE	-0.030	-1.30
CAREER	-0.014	-1.04
OFFSIZE	0.067	1.03
Intercept	8.906 ***	5.62
Annual fixed effects?	yes	
Firm fixed effects?	yes	
-2 Log Likelihood	76,550.7	
Likelihood ratio, $\chi 2$	27,776.2 ***	
N	17,738	

Notes:
RISK is the risk forecast issued for the client firm by the credit rating agency in which higher values indicate a greater probability of becoming insolvent within next 12 months; PRIOR_FAIL1 is the cumulative frequency of prior Type 1 audit reporting errors for auditor *i* for the period 2001-*t-1*; PRIOR_FAIL1 is calculated by dividing the cumulative number of companies that did not file for bankruptcy within 12 months from the issuance of financial statements *and* for whom the auditor *i* did issue a going concern report by the number of all the auditor client companies that did not file for bankruptcy within 12 months from the issuance of the financial statements for the period 2001-*t-1*. PRIOR_FAIL2 is the cumulative frequency of prior Type 2 audit reporting errors for auditor *i* for the period 2001-*t-1*. PRIOR_FAIL2 is calculated by dividing the cumulative number of companies that filed for bankruptcy within 12 months from the issuance of financial statements *and* for whom the auditor *i* did not issue a going concern report by the number of all the auditor client companies that filed for bankruptcy within 12 months from the issuance of the financial statements for the period 2001-*t-1*. GCO is an indicator variable for the going concern audit opinions; MODIF is an indicator variable for the audit opinions containing an emphasis of matter paragraph; SIZE is the natural logarithm of the total assets in Swedish crowns; DTA is the ratio of the debt to total assets; LOGAGE is the natural logarithm of the client firm *j* age in years in fiscal year *t*; CONTROL is a dummy variable with a value of one if the firm has a controlling shareholder and is otherwise zero; CASH is the ratio of cash and cash equivalents to total assets; PRIORITY is an indicator variable for the existence of loan priority over other interested parties in case of bankruptcy; BOARD_TENURE is the mean tenure of the board in years; UNPAID_DEBTS is the proportion of unpaid debts to total assets; EQ_HALF is a dummy variable with a value of one if the amount of equity capital is less than half of the share capital for client j in fiscal year t; ROA is the return on assets; PPE is the ratio of the property plant and the equipment to total assets; REPLAG is the natural log of number of days between fiscal year end and date when the financial report was filed with the Swedish company register Bolagsverket; NBR_CLIENTS is the natural logarithm of the number of auditor's all engagements. TENURE is the number of years the auditor *i* has been the auditor-in-charge for client firm *j* in fiscal year *t*. CAREER is the number of years since the auditor *i* certification date; OFFSIZE is the natural logarithm of the number of auditors in the audit office. Asterisks ***, **, and *, denote two-tailed statistical significance at the 1 percent, 5 percent, and 10 percent levels, respectively.